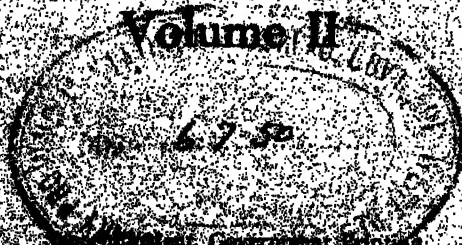


Government of Bengal
Department of Agriculture and Industries

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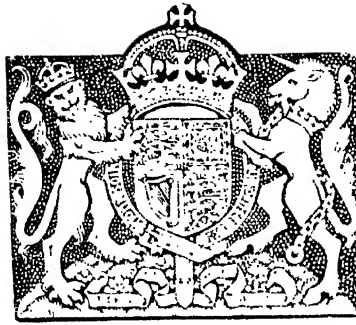
Report of the
Bengal Paddy and Rice
Enquiry Committee

Volume II



Government of Bengal
Department of Agriculture and Industries

Calcutta, 1950



Government of Bengal

Department of Agriculture and Industries

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Bengal Paddy and Rice
Enquiry Committee

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Report of the Bengal Paddy and Rice Enquiry Committee.

Volume II.

- I. Questionnaire.
- II. Selected written replies to questionnaire and other written notes and memoranda.
- III. Précis of Oral Evidence of witnesses examined in Calcutta.
- IV. Précis of Oral Evidence of mufassal witnesses examined by the touring Sub-Committee.

TABLE OF CONTENTS.

	PAGE.
I. Questionnaire	1-7
II. Selected written replies to questionnaire and other written notes and memoranda received from—	
1. Commissioner of the Presidency Division	11-14
2. Commissioner of the Burdwan Division	14-27
3. Collector of Murshidabad	28-31
4. District Officer, Howrah	31-35
5. Collector of Dinajpur	35-39
6. Subdivisional Officer, Kushtia	39-45
7. Registrar of Co-operative Societies, Bengal	45-48
8. Director of Industries, Bengal	48-50
9. Note by Director of Agriculture, Bengal	50-54
10. Senior Marketing Officer, Bengal	54-76
11. Economic Botanist, Dacca Farm	77-80
12. Indian Chamber of Commerce	80-81
13. Marwari Chamber of Commerce	81-82
14. Bengal National Chamber of Commerce	82-92
15. Imperial Chemical Industries (India), Ltd.	92-95
16. Calcutta Grain, Oilseed and Rice Association	95-96
17. Chittagong Chamber of Commerce	97-103
18. British Indian Association	103-115
19. Sundarban Landholders' Association	115-122
20. Paddy Merchants' Association	123-132
21. Hooghly District Agricultural Association	132-144
22. Parbatipur Co-operative Paddy Sale Scheme from Registrar of Co-operative Societies, Bengal	145-149
23. Mr. Amulya Dhan Addy	149-157
III. Précis of Oral Evidence of witnesses examined in Calcutta	159-168
1. Deputy Director of Commercial Intelligence and Statistics (Mr. J. N. Ghosh).	
2. Mr. H. Graham, Commissioner, Presidency Division.	
3. Mr. H. P. V. Townsend, Commissioner, Burdwan Division.	
4. Mr. A. R. Malek, Senior Marketing Officer, Bengal.	
5. Mr. D. Hendry, M.L.A.	
6. Mr. A. R. Goster of Messrs. Imperial Chemical Industries (India), Ltd.	
7. Mr. Ashutosh Bhattacharjee, and	
8. Mr. Sarat Chandra Saha, Representatives of the Bengal National Chamber of Commerce.	
9. Mr. Gowri Sankar Adhikari of Indian Chamber of Commerce.	
10. Mr. M. A. Isphani.	
11. Mr. M. A. Azizkhan.	
12. Mr. Mohammed Siddique.	
13. Mr. H. M. Shah Representatives of Muslim Chamber of Commerce.	
14. Mr. S. Bhar, representative of Marwari Chamber of Commerce.	

15. Mr. S. Sen and
16. Babu Monomohan Singh Roy of British Indian and Hooghly Landholders' Association.
17. W^r. A. Bhattacharjee, President, Paddy Merchants' Association
18. Babu Nikhil Chandra Saha, representative of the North Calcutta Rice Mills Association.
19. Babu Amulya Dhan Addy, representative of Sundarban Landholders' Association.
20. Mr. P. K. Roy, Inspector of Co-operative Societies in charge of the Central Co-operative Paddy Sale Society (Ultadanga).
21. Mr. Ashutosh Bhattacharjee, representative of Calcutta Rice Merchants' Association.
22. Mr. Binay Krishna Ray, representative of Rice Mill-owners' Association.
23. Mr. Amulya Dhan Addy.
24. Khan Bahadur Maulvi A. M. Arshad Ali, Registrar, Co-operative Societies, Bengal.
25. Mr. Faizullah Ganjee of Messrs. Ganjee Sajun & Co.

IV. Précis of Oral Evidence recorded by the touring Sub-Committees—

Bogra.

- | | | |
|------------------------------------------------------------------|-------|-----|
| 26. Secretary, District Agricultural Association, Bogra | .. .. | 171 |
| 27. Chairman, District Board, Bogra (Khan Bahadur Mohammed Ali). | | |
| 28. Secretary, Padmapara Central Co-operative Bank. | | |
| 29. Maulvi Muhammad Syodullah. | | |
| 30. Maulvi Musharaf Ali Ahmed. | | |
| 31. Secretary, Union Board Association, Bogra. | | |
| 32. Rai Sahib Purna Chandra Chakravarty of Jaypurhat. | | |
| 33. Babu Promotha Nath Saha of Sariakandi. | | |
| 34. Hirendra Nath Sarkar of Madla. | | |
| 35. Khan Sahib Jasiruddin of Janulganj. | | |
| 36. Munshi Mohammed Ali of Govindapur. | | |
| 37. Munshi Md. Kazemuddin Mondal of Gopinagar. | | |
| 38. Munshi Jahiruddin Tarafdar of Bohail. | | |
| 39. Munshi Sadat Ali Munshi of Chandabaisa. | | |
| 40. Maulvi Hazrat Ali of Dakshin Joreganha. | | |

Hili.

- | | |
|---------------------------------------------------------------------------------------------|---------|
| 41. Babu Gangesh Chandra Chatterjee | 172-173 |
| 42. Babu Nalini Kanta Goswami of Balurghat, Secretary, Balurghat Central Co-operative Bank. | |
| 43. Maulvi Shah Abdur Rauf Choudhury of Balurghat, Member, District Board. | |
| 44. Maulvi Ahmed Chaudhury of Balurghat, Member, District Board. | |
| 45. Nalini Kanta Chakravarty, Pleader and Member, District Board. | |
| 46. Babu Debendra Nath Chakravarty, Pleader and Member, District Board. | |
| 47. Maulvi Helaluddin. | |

48. Maulvi Helal Ali Sarkar.
49. Maulvi Rakinuddin.
50. Maulvi Gani Moah Mandal.
51. Maulvi Nasiruddin.
52. Maulvi Md. Sahar Ali Khan.

Millowners.

53. Rai Sahib Jagadishwar of Birampur, Member, District Board and President, Union Board.
54. Babu Ashutosh Munshi.
55. Babu Priya Nath Sarkar.
56. Babu Surendra Nath Kundu.
57. Babu Ram Pal Agarwala of Fulbari.
58. Babu Rashik Lal Pal.
59. Babu Protap Chandra Mazumdar.

Aratdars and Commission Agents.

60. Babu Ram Das Ram.
61. Babu Ananda Mohan Haramohan.
62. Babu Folaram Kanailal.
63. Messrs. Biswanath Chundra Zemindary, Co., Ltd.
64. Maulvi Abdul Wadud, Circle Officer.

Rangpur.

65. Maulvi Md. Shah Abdur Rauf, Vice-Chairman, District Board . . . 174-175
66. Secretary, Agricultural Association.
67. Secretary, Union Board Association.
68. Secretary, Gaibandha Agricultural Association.
69. District Agricultural Officer.

Millowners.

70. Babu Push Ray Oswal.
71. Babu Hari Prasad Chandak.
72. Babu Dwarika Prasad Shah.

Jobelars and Growers.

73. Maulvi Md. Abdul Karim.
74. Babu Pramotha Nath Bhattacharjee.
75. Maulvi Golam Goueh Doctor.
76. Maulvi Md. Naya Moah.
77. Mir Kazi Md. Ilyas, Deputy Chairman, Central Co-operative Bank.
78. Maulvi Giasuddin Akon of Gaibandha.

	PAGE.
79. Maulvi Safeyeduddin Ahmed of Gaibandha.	
80. Maulvi Mohiuddin of Nilphamari.	
81. Maulvi Ohtuzuddin Ahmed of Nilphamari.	

Dinajpur.

82. Babu Kritanto Kumar Biswas, Honorary Secretary, Central Bank, Dinajpur	175-176
83. Khan Sahib Maulvi Amiruddin Sarker.	
84. Maulvi Osmal Ali Khan	
85. Maulvi Sherifuddin Choudhury.	
86. Babu Oma Prasad Palit of Thakurgaon.	
87. Babu Girindra Mohan Mazumdar of Sadar, jotedar.	
88. Babu Bijoy Bhushan Banerjee of Sadar, jotedar.	
89. Rai Shaib Nalini Mohan Sinha of Dinajpur Raj.	
90. Chairman, Dinajpur District Board.	

Barisal.

91. Khan Bahadur Hashem Ali, Chairman, District Board, Barisal ..	176-177
92. Assistant Registrar of Co-operative Societies, Barisal Circle.	
93. Maulvi Ahmed Ali Kazi, Jotedar.	
94. Maulvi Md. Ismail, B.L., Cultivator.	
95. Maulvi Hashem Ali, B.L., Cultivator.	
96. Babu Behari Lal Ghose, merchant.	
97. Babu Kumudini Kanta Saha, merchant.	
98. Babu Amulya Kumar Sarkar, grower and dealer.	
99. Jalal Ahmed, Mukhtear.	
100. Khasmahal Officer, Barisal.	

Dacca.

101. W. M. Clark, Esq., M.B.E., Y.A.S., Deputy Director of Agriculture, Eastern Circle	178-179
102. Mr. J. P. Sen Gupta, Chief Superintendent, Dacca Farm.	
103. Dr. S. Hedayetullah, Economic Botanist.	
104. Mr. S. G. Sharangapani, 2nd Economic Botanist.	
105. Mr. J. N. Sen, B.L., President, Dacca Bar Association.	
106. Prof. H. L. Dey, M.A., D.Sc., Econ. (London), Head of the Department of Economics, Dacca University.	
107. Mr. B. K. Das, Senior Deputy Collector.	
108. Md. Salek, grower.	
109. Hazi Ahmed Ali, President, Union Board, Jinjira, and jotedar.	
110. Maulvi Md. Alimchand Bepari of Kalagachia.	
111. Maulvi Md. Bepari of Foyeznagar.	
112. Maulvi Md. Abul Barkat of Kaliganj, jotedar.	
113. Special Hyacinth Officer.	
114. Md. Riazuddin, jotedar and grower of Hashara.	
115. Maulvi Kazi Abdul Majid of Kalagachia.	
116. Maulvi Abdur Rahaman of Kalagachia.	

	PAGE.
Serajganj.	
117. Rai Bahadur P. C. Sen, Vice-Chairman, Central Co-operative Bank . .	180-181
118. Circle Officer, Ullapara.	
119. Maulvi Jahiruddin Sarkar, President, Taras Union Board and member, Local Board.	
120. Maulvi Mahiuddin Khan, President, Durganagar Union Board.	
121. Mr. A. K. Aminullah, Inspector of Co-operative Societies, Serajganj.	
122. Babu Rai Charan Saha, rice merchant.	
123. Babu Nriyagopal Mazumdar, District Agricultural Officer, Pabna.	
124. Maulvi Khaliluddin Talukdar, President, Nawakhola Union Board, and Vice-Chairman, Local Board.	
125. Babu Rashiklal Roy, B.L., President, Sirajganj Bar Association.	
126. Babu Thakurdas Saha, representative of Messrs. Ratanchand Manik- chand (Marwari Firm), dealers in Rice and Paddy.	
127. Tamsuk Lal, and	
128. Pochraj, Paddy and Rice dealers.	

Mymensingh.

129. Khan Sahib Nurul Amin, Chairman, District Board	181-182
130. Maulvi Md. Umed Ali, Secretary, Union Board Association.	
131. Babu Benode Lal Mukherjee, District Agricultural Officer.	
132. Md. Abed Ali Bepari of Badekalpa, police-station Kotwali.	
133. Maulvi Niyamat Munshi, middlemen, rice dealer of Akum, police-station Kotwali.	
134. Md. Osman Ghani of Badekalpa, police-station Kotwali, President, Union Board.	
135. Babu Gagan Chandra Saha Roy of Mirkandapara, police-station Kotwali.	
136. Maulvi Nur Hussain Khan of Iswarganj, growers' representative.	

Kishoreganj.

137. Babu Sudhendu Chandra Mazumdar, Secretary, Union Board Associa- tion	183-184
138. Babu Bepin Chandra Roy, pleader.	
139. Babu Bepin Chandra Bhattacharjee, Secretary, Co-operative Bank.	
140. Maulvi Abdul Aziz Khan, Muktear, of Hoghlakandi, President, Union Board, and Chairman, Debt Settlement Board.	
141. Babu Umesh Chandra Bhaumick of Karimganj Thana.	
142. Md. Akhtaruddin Ahmed of Porora, police-station Kathiadi.	
143. Md. Aftabuddin Ahmed of Kunuarpur, police-station Pakuria.	
144. Babu Saroj Bandhu Roy of Banagram, police-station Kathiadi.	
145. Maulvi K. Ahmed, Circle Officer, Kishoreganj, and	
146. Babu K. C. Roy, Debt Settlement Officer, Kishoreganj.	

Comilla.

- | | | |
|------|-----------------------------------------------------------------------------------------------------------|---------|
| 147. | Dewan Naimul Haque, Subdivisional Officer, Sadar, and Secretary, Union Board Association, Comilla | 184-186 |
| 148. | Babu Asit Chandra Chakraverty, M.A., Vice-Chairman, Tipperah Raj Central Co-operative Bank. | |
| 149. | Maulvi Md. Tafazzal Hossain, Secretary, Central Co-operative Bank, Chandpur, and | |
| 150. | Maulvi Md. Abdul Ghaffur Bhuiya, Director, Comilla Central Co-operative Bank. | |
| 151. | Rai Bahadur U. M. Mitra, President of the Bar Association. | |
| 152. | Munshi Nurul Islam Choudhury, President Alkora Union Board. | |
| 153. | Babu Nilkanta Bhattacharjee, President, Gobindapur Union Board, Laksham Circle, and | |
| 154. | Md. Gazanfar Ali Sarkar of Shatnol (Chandpur). | |
| 155. | Mr. P. K. Biswas, District Agricultural Officer, Comilla. | |
| 156. | Maulvi Abdul Ghani Choudhury, B.L., Pleader (of Kazirkona, Daudkandi Circle). | |
| 157. | Maulvi Abdul Haque Khadim of Kharainpur, Brahmanbaria. | |
| 158. | Maulvi Abdur Rahman Mia, President, Chitosi Union Board (Hajiganj Circle). | |
| 159. | Maulvi Alauddin of Sholakandi police-station, Daudkandi Circle. and | |
| 160. | Maulvi Munshi Gazi of Gokulnagar, Moradnagar Circle. | |
| 161. | Babu Khirode Chandra Saha of Chakbazar (Sadar). | |
| 162. | Babu Jainoswar Bardhan of Baburhat (Chandpur). | |
| 163. | Babu Bolai Chandra Saha of Akhaura (Brahmanbaria). | |
| 164. | Babu Rohini Kumar Roy of Daulatganj Bazar (Sadar). | |
| 165. | Babu Sachī Nanda Poddar, B.A., of Brahmanbaria, and | |
| 166. | Maulvi Kaloo Bepari of Puraubazar (Chandpur). | |

Jessore.

- | | | |
|------|------------------------------------------------------------------------------------|---------|
| 167. | Rai Bahadur N. C. Bose, Collector of Jessore | 186-187 |
| 168. | Babu Jogendra Nath Sen, representative of the Bar Association. | |
| 169. | Babu Abinash Chandra Sarkar, Deputy Chairman, Central Co-operative Bank, Advocate. | |
| 170. | Babu Pabitra Mohan Sen, District Agricultural Officer. | |

Merchants.

- | | |
|------|-------------------------------------|
| 171. | Nilmony Poddar of Lohagora. |
| 172. | Pramathanath Datta of Magura. |
| 173. | Bistupada Mondal of Bongaon. |
| 174. | Sarat Chandra Kundu of Narail. |
| 175. | Patit Paban Saha of Magura. |
| 176. | Matindranath Saha of Sadar. |
| 177. | Purna Ch. Kundu of Narail. |
| 178. | Hanuman Bakshar Nephani of Bongaon. |
| 179. | Kali Charan Saha of Sadar. |

Middlemen.

- 180. Munshi Navu Molla of Magura.
- 181. Patan Molla of Magura.
- 182. Maulvi Daliluddin Biswas of Kaliganj.
- 183. Babu Srish Ch. Ghosh of Basundia.
- 184. Babu Kalipada Shaha of Jinaidah.

Growers.

- 185. Md. Momtazuddin Sikdar of Magura.
- 186. Md. Sadaruddin Biswas of Magura.
- 187. Md. Abdus Samad Molla of Narail.
- 188. Md. Kudratulla of Bongaon.
- 189. Babu Surendra Nath Biswas of Narail.
- 190. Babu Mukham Lal Chatterjee of Bongaon.
- 191. Md. Fazel Karim Molla of Narail.
- 192. Maulvi Mosam Sardar of Jhampa.
- 193. Babu Sashi Sekhar Bose of Sadar.

Krishnagar.

- | | | | |
|---------------------------------------------------------------|----|----|---------|
| 194. Mr. M. M. Stuart, Collector of Nadia | .. | .. | 188-189 |
| 195. President of the Bar Association, Nadia. | | | |
| 196. Secretary, Central Co-operative Bank. | | | |
| 197. District Agricultural Officer. | | | |
| 198. Maulvi Mohsin Ali, M.L.A., Merchant and grower. | | | |
| 199. Babu Hemanta Kumar Roy of Tehatta. | | | |
| 200. Dr. Karim Bux of Kashthadanga. | | | |
| 201. Babu Panchanan Biswas of Poradanga. | | | |
| 202. Khan Sahib Maulvi Md. Harunur Rashid of Tatosh, Haripur. | | | |
| 203. Babu Gouri Kanta Roy Chowdhury of Jeorajhi. | | | |
| 204. Munshi Md. Ali of Chak Bheramara. | | | |
| 205. Babu Hariram Agarwalla of Kushtia. | | | |

Growers.

- 206. Babu Upendra Nath Sirkar of Majdia.
- 207. Babu Sayaram Roy of Begampur.
- 208. Munshi Kayem Ali Biswas of Maninpur.
- 209. Babu Satkari Biswas of Patikabati.
- 210. Maulvi Forman Ali Khan of Brithihuda.

	PAGE.
Bankura.	
211. Mr. S. K. Halder, I.C.S., Collector	189-190
212. Babu Banka Behari Dutta, Secretary, Central Co-operative Bank, Bankura.	
213. Rai Bahadur Satya Kinkar Sahana of Indus.	
214. Babu Taragati Samanta of Bankura.	
215. Babu Sarat Chandra Kundu of Indus.	

Growers.

216. Babu Dharanidhar Kundu.
217. Babu Bholanath Datta.
218. Ramanath Hazra.
219. Mr. R. R. Dutta, Senior Deputy Collector, Bankura.

Midnapore.

220. Mr. B. R. Sen, I.C.S., Collector, Midnapore.	191-192
221. Mr. D. M. Gupta, M.A., Sadar Subdivisional Officer.	
222. Babu D. M. Bhattacharjee, Chairman, District Board.	
223. Babu Satya Ranjan Datta, Secretary, Central Co-operative Bank, Midnapore.	
224. Babu Utpal Sarkar, District Agricultural Officer.	

Growers.

225. Babu Sristidhar Mandal.
226. Babu Rajballabh Mandal of Jhargram.
227. Babu Bhima Charan Patra of Contai.
228. Babu Naba Kumar Mukherjee of Ghatal.

Middlemen.

229. Babu Dinanath Mehera of Jhargram.
230. Babu Ramprasad Murwari of Jhargram.
231. Babu Sreenath Jaha of Contai and
232. Babu Kalidas Bardhan of Ghatal.

Burdwan.

233. Mr. B. B. Sarkar, I.C.S., Collector of Burdwan	192-193
234. Babu Lakshman Kumar Chatterjee, Secretary, Central Co-operative Bank, Burdwan.	
235. Babu Bholanath Adhikary, Secretary, Union Board Association, Burdwan.	
236. Raja Bahadur Mani Lal Singh Roy, Chairman, District Board.	

Middlemen and growers.

- 237. Babu Dinabandhu Saha of Kalna.
- 238. Babu Dharendra Nath Bahaduri of Kalna.
- 239. Babu Felaram Mandal of Galsi.
- 240. Babu Gopi Nath Ghose of Katwa.
- 241. Babu Prafulla Kumar Panja of Raina, Merchant.
- 242. Babu Krishnabilash Chakravarty, merchant and grower of Asansol.
- 243. Babu Satyasadhan Chatterjee, merchant and grower, Memari.
- 244. Babu Karunamoy Mukherjee, merchant and grower, Memari.
- 245. Babu Sarat Chandra Kumar, grower and merchant of Memari.
- 246. Babu Santosh Behari Bose, District Agricultural Officer.

Suri.

- 247. Khan Bahadur Madrassar Hossain, President, Rampur Hat Union
Board 194-195
- 248. Babu Hari Kinkar Satnanta.
- 249. Rai B. B. Sarkar Bahadur, Collector of Birbhum.
- 250. Babu Abinash Chandra Mitra, President, Bar Association, Suri.
- 251. Maulvi Chaudhuri Abdul Majid of Nannoor.
- 252. Maulvi M. Kaiyum, Member, Nannoor Union Board.
- 253. Maulvi Md. Sagar Mia of Sadyahat, Rampurhat.
- 254. Maulvi Dadu Molla of Shankarpur.
- 255. Babu Bagalapada Banerjee, Secretary, Suri Central Bank.
- 256. Maulvi Kazi Abdul Zahir, Proprietor, Azim Rice Mill of Rampurhat.
- 257. Babu Jnananda Banerjee of Sainthia, Aratdar.
- 258. Babu Baisnab Charan Datta, Aratdar of Lohapur.

Malda.

- 259. Babu Satish Chandra Agarwala, merchant and cultivator, Bargadar .. 195-196
- 260. Md. Naziruddin, Izaradar, and Tashildar of Dr. Syed Md. Siddique.
- 261. Maulvi Mohasin Roza, Muktear and grower.
- 262. Maulvi Maula Baksha.
- 263. Babu Shyamlal Marwari.
- 264. Babu Ganga Charan Dutt, Pleader at Chapai, Nawabganj.
- 265. Rai Sahib Bishnu Charan Banerjee.
- 266. Kazi Md. Quasem Ali Mia, Chapai, Nawabganj.
- 267. Hazi Piar Baksh, Chapai, Nawabganj.
- 268. Babu Jadab Chandra Sarkar.
- 269. Md. Kudrutolla.
- 270. Maulvi Sheikh Bahatullah, Muktear.
- 271. Babu Karpur Mondal.
- 272. Babu Shashi Bhushan Sett.
- 273. Babu Rajani Kanta Sarkar.
- 274. Mr. A. N. Roy, District Magistrate.
- 275. Mr. Amarendra Nath Bhattacharjee.
- 276. Mr. Krishna Chandra Barman, Special Officer for Barind.

**Questionnaire issued by the Bengal Paddy and
Rice Enquiry Committee.**

Questionnaire.

Statistics of supply, demand and stock.

1. (a) Do you consider the present method of estimating the annual outturn of paddy on the basis of acreage under the crop and yield per acre satisfactory?

(b) If not, why not? What are the principal defects in the present method of compilation?

(c) Do you consider that these defects can be remedied (i) without any substantial changes in the existing administrative machinery, and (ii) without any substantial increase in costs? If so, please give an outline of your modified scheme.

(d) If your answer to question 1(c) is in the negative what alternative method of compilation would you propose? What would be the costs of this alternative scheme? and what kind of organisation will be necessary for this purpose?

(e) Do you think an indirect method of compilation, say by the method of random sampling, would yield satisfactory results, in the case of a crop like paddy?

2. (a) Do you consider it is feasible to compile fairly accurate statistics of interdistrict movements of paddy and rice at a reasonable costs? If so, please describe your scheme briefly.

(b) To what practical purposes would you put such statistics?

3. (a) Do you consider it necessary to obtain accurate statistics of (1) the outturn of an area under paddy, and (2) the effective demand for paddy and rice district by district?

(b) How would you compile such statistics? (i) What would be the nature of organisation necessary for this purpose, and (ii) the costs of maintaining such an organisation?

4. (1) Do you consider that the existing statistics of imports and exports of paddy and rice into and from this province, from and to other provinces of British India (without Burma) are reasonably accurate?

(2) If not, do you think it is feasible to obtain accurate statistics on this point? How would you compile them? Do you think the cost of compilation of such statistics would be justified by the uses to which they might be put?

5. (a) Do you consider it is possible to obtain fairly accurate statistics of stocks of paddy and rice in hand in any particular year?

(b) If so, how would you compile them?

(c) Do you consider legislation necessary for this purpose?

6. (a) On the basis of your statistical knowledge, do you find that Bengal produces (a) paddy, and (b) rice in deficit of her requirements every year or in any particular year?

(b) If so, how is this deficit met?

(c) Do you think this deficit could be met by increased production? Is it desirable to take necessary steps towards this end? If so, what are the steps you would propose?

7. (a) Is there any correlation between the prices of paddy and rice (a) from year to year, or (b) over series of years?

(b) If so, what is the nature and extent of such correlation?

(c) Are there any factors, which specially affect the prices of either of these commodities?

8. Is there any correlation between the prices of paddy and those of other agricultural staples? If so, what is the nature of such correlation?

9. (a) Have the prices of paddy and rice been steadily falling during the last three or four years, say since 1934?

(b) If not, how have prices fluctuated during these years? Could you illustrate your answer by figures for some standard varieties of paddy and rice?

(c) If there has been a fall, in any *particular* year since 1934, what has been the special factors responsible for it?

10. (a) If your answer to (a) is in the affirmative, do you think this steady fall is the result of some temporary adverse factors, or is due to reasons of a more permanent character?

(b) If you accept the former explanation, please enumerate the adverse factors that in your opinion have depressed price during the last few years.

(c) If you accept the latter view, what are these permanent adverse factors?

11. (a) Which of these factors are in your opinion (i) of an international character, and (ii) which are amenable to control by the Government of India or the Government of the Province?

(b) Can you express any opinion as to the extent to which these two sets of factors have severally depressed prices?

12. (a) Is the fall in prices due to a disproportionate increase in supply? Has production increased during the last few years? If so, to what extent?

(b) If local production has not increased, has foreign supply, by way of imports, increased? If so, to what extent? What are the countries from which imports have thus increased? Do you consider this increase to be permanent?

(c) (i) Can you correlate the fall in prices during the last few years to increase in foreign supply by way of imports?

(ii) If not, what is the precise nature of the influence exerted by foreign supplies on local prices?

13. Is the fall in prices due to a shrinkage in (i) local, or (ii) foreign demand? If so, to what extent has such demand fallen during the last few years? What are the causes of this fall? Is this fall due to temporary reasons or to factors of a more permanent character?

14. (a) Do you consider that the present export duty on rice has affected foreign demand for this commodity?

(b) Has the export duty affected the price paid for paddy to the cultivators?

(c) What in your opinion is the incidence of this export duty?

Minimum price and improvement of price.

15. (a) What is the average yield of paddy per acre in different districts of Bengal?

(b) What is the approximate average cost of production per maund (80 tolas=1 seer; 40 seers=1 maund)?

(c) How do you calculate this?

16. What do you consider to be a fair profit to the cultivator? What do you mean by an economic price for this crop?

17. Can the margin of cultivator's profit be increased? If so, by what means?

18. Can a better outturn be obtained by more improved methods of cultivation?

19. (a) Do you consider it *advisable* to fix minimum prices for paddy and rice?

(b) On what basis should it be fixed?

(c) For what period should it be fixed?

20. What essential conditions must be fulfilled before any such scheme can be made practicable?

21. How do you propose to maintain a minimum price?

22. What organisation do you propose to implement such a policy?

23. What financial implications would such a policy involve? How would you meet them?

24. What is the average difference between the price paid to the cultivator and the price paid by the miller or exporter who ships paddy and rice to foreign markets?

25. Could this difference be reduced by the exclusion of some middlemen?

26. (a) To what extent do cultivators pledge their crops before harvest?

(b) Does it affect the price obtained by the cultivator for this crop?

27. To what extent do different standards of weights and measures affect the price obtained by the cultivator for his crop?

Marketing.

Inland Market.

28. (a) What are the present systems of sale by producing cultivators?

(b) Do you consider these system to be satisfactory?

(c) If not, what are their principal defects?

29. Are there any marketing customs or allowances in cash or kind which would affect the price obtained by producers?

30. (a) Do you consider that uniform weights and measures should be fixed? If so, what basic weights and measures would you suggest?

(b) Are there any practical difficulties in the way of enforcement of such weights? How would you meet them?

31. (a) What is the present system of grading paddy and rice?

(b) Do you think that standardization of grades should be enforced?

(c) What authority should determine the standard grades? Government or Trade Committee or a Statutory Body?

(d) How could paddy and rice be assorted according to such standard grades in the mufassal? Could any simple tests be adopted? How would you settle disputes, if any, on this subject?

32. (a) Do prices prevailing in the Calcutta Wholesale Paddy and Rice market affect prices paid to the cultivators?

(b) If so, how and to what extent?

(c) Do producing cultivators have any means of knowing these prices and the movements that occur?

(d) If not, how do you consider information as to wholesale prices be conveyed to producers?

Regulated Markets.

33. (a) Do you consider that the establishment of regulated markets is desirable?

(b) What should be the area over which such markets should operate?

(c) What authority should select the sites of such markets?

(d) How should the marketing committee be constituted?

(e) How would such a market be financed?

(f) Are such markets likely to attract buyers and sellers? Will it be necessary to prohibit dealings outside such markets? If so, how could such prohibition be effectively enforced?

Co-operative Sale Societies.

34. (a) Could Co-operative Sale Societies improve the existing system of marketing?

(b) What are the conditions necessary for the success of such societies? Do you think it would be advisable and practicable to secure the fulfilment of all or some of these conditions by legislation?

(c) (i) What would be the type of organization you would propose for such societies?

(ii) Would there be any difficulty in financing these societies? If so, how would you solve them?

(d) Do you think Co-operative Sale Societies are more likely to succeed if they operate through regulated markets? If so, what would be respective duties and functions of Co-operative Sale Societies and the regulated markets?

Communications.

35. (a) Do the existing means of communication in the mufassal hamper marketing to any substantial extent?

(b) Are the charges for conveyance of paddy and rice from the mufassal to the wholesale markets by (i) road, (ii) railways, (iii) steamers, and (iv) country-boats excessive? What percentage do they constitute of the wholesale price? (Maximum and minimum figures would do, if you are not in a position to supply typical figures.)

Foreign Marketing.

36. (a) What are the principal grades and varieties of paddy and rice exported to and imported from other provinces of India and from other foreign countries?

(b) What are the terms on which paddy and rice are exported to and imported from (i) other provinces, (ii) foreign countries?

(c) Are there any fixed standards of quality on which business is done for export or import? Who fixes those standards? Do the standards vary from year to year?

(d) What improvements would you suggest in the methods adopted at present in the export and import trade?

37. (a) Do you consider that transport charges to (i) other provinces, and (ii) foreign countries affect the export trade to any substantial extent?

(b) Could you give typical figures to show the proportion which such charges to export prices?

(c) Could you supply *comparable* figures to show the charges, on this account, from other Indian ports, Burmese ports or from other competing foreign ports to the export markets?

38. (a) Do you consider the establishment of a Central Organization for the regulation and improvement of the foreign trade in paddy and rice (i) desirable, and (ii) practicable?

(b) If so, please give an outline of the organisation you would propose.

(c) In what directions, if any, could such an organization improve the foreign trade?

**Selected written replies to questionnaire and other
written notes and memoranda.**

**Replies to questionnaire on paddy and rice by Mr. H. Graham,
Commissioner, Presidency Division.**

1. (a) There is nothing wrong with the method itself but the difficulty is that Presidents of Union Boards, through whom statistics are collected do not always work honestly, and the compilation is left to an ignorant and ill-paid clerk.

(b) The work is not taken seriously by Presidents and their Chowkidars and Dafadars. There is not sufficient earnestness either in securing accurate figures or in submitting them in time to higher authorities.

(c) Matters may improve if a form of return is prescribed for Dafadars or Chowkidars to be submitted on parade days and its timely and regular submission insisted upon, but no amount of instructions are likely to yield any satisfactory result unless Union Boards develop a higher sense of public duty and learn to take an interest in matters of this nature, though they are not of purely local importance.

(d) Does not arise in view of the answers given above.

(e) No. I await the results of random sampling in respect to the jute crop before I attach much value to the method.

2. (a) Yes, by using railway figures and posting officers at every important hât and bazar.

(b) I do not consider the figures likely to be of much practical value.

3. (a) Not necessary to obtain detailed statistics district by district. What is of value is whether a district is normally a deficit district in respect to rice or produces a surplus for export.

(b) The District Officer can supply a normally approximate estimate.

4. (1) Probably so, as they are carried mostly by Railway and Steamer Companies by whom statistics are kept.

(2) Does not arise.

5. (a) Not easy but there is no reason stockists should not be compelled to divulge their stocks.

(b) Presidents of Union Boards could secure figures of stocks.

(c) No.

6. (a) There has been no deficit for some years, the province I believe exceed the imports.

(b) Deficit in some areas is adjusted by surplus production in others.

(c) There is scope for improvement in the yielding, by improved seeds, and by irrigation and drainage. The yield in Bengal is very low compared with Japan, Egypt and Italy.

7. (a) Yes.

(b) The price of rice is just a little more than double the price of an equal quantity of paddy.

(c) The prices of rice and paddy depend largely upon the price of jute which is the most important money crop of this province. If the

price of jute falls due to over-production or other causes it has a depressing effect on the prices of paddy and rice. On the other hand, if there is a rise in the price of jute, we have more money flowing into the market, and this has the natural tendency of pushing up the prices of paddy and rice.

8. Not much.

9. (a) and (b) The paddy and rice markets were of course affected by the slump of 1929-30 and have not recovered appreciably to the figure of the pre-slump years.

10. (a), (b) and (c) The adverse factors which are depressing the prices of paddy and rice are more or less permanent. These are—

- (1) World-wide economic recession. When a general recovery is established prices may adjust themselves but the general level will be lower than that of the boom years.
- (2) The prices of paddy and rice are correlated with the prices of jute, it is almost certain that due to world factors and the use of substitutes the prices of jute will settle down permanently to a lower level than that prevailing from 1922-29.
- (3) Jute restriction propaganda may prevent prices from going down, but it will have the effect of releasing large quantities of land from jute cultivation which for a long time will have to be utilized for the cultivation of paddy. This will have the natural effect of depressing the prices of paddy and rice.

11. (a) Please see answers to Question 10 above. The adverse factors mentioned in (1) and (2) above are of an international character. Those mentioned in (3) are amenable to control by Government. What is required is dissemination of agricultural knowledge and incessant propaganda with a view to induce cultivators to give up their conservative habits. They should be taught not to depend exclusively on rice and paddy but to regulate their production by cultivating a variety of crops according to changing market conditions.

(b) The shrinkage of exports is the chief factor.

12. (a) I do not think the fall in prices is due to any disproportionate increase in supply.

(b) If the price rises beyond a certain figure Burma rice is imported and the market is depressed for a time in consequence.

(c) I cannot furnish the figures.

13. There has been less foreign demand. The local demand steadily rises.

14. (a), (b) and (c) The trade can supply these answers.

15. (a), (b) and (c) The information may be obtained from the districts or from the Agricultural Department. 10 to 30 maunds is the maximum variation.

16. About Rs. 2 per maund without taking into consideration rent of the land and the cultivator's own labour.

1. May 1950
 An economic price should leave the cultivator a fair margin of profit which together with his profits from other crops will enable him to maintain himself and to pay rent and taxes. The amount required for maintenance should include education of children, medical attention and also some savings.

17. Yes, by intensive cultivation, the use of improved methods and consolidation of holdings.

18. Yes.

19. (a) I do not think it is feasible to fix minimum prices for paddy and rice.

(b) and (c) Do not arise.

20. Does not arise.

21. Does not arise.

22. Does not arise.

23. Does not arise.

Report of the Bengal Paddy and Rice Enquiry Committee.

Volume II.

NOTE.

These pages are to replace the existing pages 13 to 26.

only unsatisfactory feature is the ignorance and poverty of cultivators which put them at a disadvantage in the matter of bargaining with middlemen. Want of adequate storing arrangements is also another disadvantage of the cultivators.

(c) *Vide* answer to (a) above.

29. There are, as in the case of all crops, allowances and trade customs.

30. (a) Yes, 80 tolas per seer and 40 seers per maund.

(b) No great difficulty anticipated.

31. (a) There is no system of grading as far as I know. There are different prices for different kinds of paddy.

(b), (c) and (d) I do not think such is feasible. The main varieties of paddy and rice are well-known everywhere.

32. (a) and (b) Presumably they do affect prices paid to cultivators in the case of purchases on a big scale, but not appreciably in the case of small local purchases.

(c) Producing cultivators have no sure knowledge of prices and their movements in the Calcutta whole-sale market.

(d) Development of wireless broadcasting.

33. (a) No.

(b), (c), (d), (e) and (f) Do not arise.

34. (a), (b), (c) (i) and (ii) and (d) Such societies might be successfully organized.

35. (a) Yes.

(b) Conveyance charges are not excessive.

36. (a) The principal varieties of rice are (1) Kazla, White Patna (table), boiled Patna and Ballam.

Imports are from Burma and rice imported therefrom is called Rangoon rice.

(b), (c) and (d) Are matters for the trade.

37. It is for the Trade to reply.

38. Such an organization is practicable.

Replies submitted by Mr. H. P. V. Townend, Commissioner, Burdwan Division, to questionnaire on Paddy and Rice.

Question 1 (a): Is the present method of estimating outturn satisfactory?

1. To the best of my belief there is no one who considers the present estimates of the annual outturn of aman paddy to be satisfactory; and the method of preparing them must therefore be condemned. In 1918 and 1919 when I was Director of Civil Supplies and it was essential to know what was the yield of paddy in Bengal, in order that Government might decide how much should be allowed to go out of the province, I found all calculation based on the crop forecasts to be defective. Since then the forecasts have to this extent improved that the areas suitable for paddy are no longer a matter of guess work but are known from the Settlement Reports of the various districts; but the general standard of accuracy has not improved greatly because there is no real machinery for discovering how much of the areas suitable for paddy are in any given year utilised for paddy or what is the yield from the areas so utilised. The Royal Commission on Agriculture made some caustic remarks on the method of estimating areas under crops in Bengal, describing them as "admittedly mere guesses and, not infrequently, demonstrably absurd guesses"; and they recommended that the system used for collecting statistics regarding jute should be adopted for collecting those regarding other crops. As the jute statistics are condemned by the trade as most unsatisfactory, it is obvious that, if the Agricultural Commission was right, there is nothing to be said in favour of the statistics relating to other crops including paddy. The view taken by the Commission was accepted as correct by Professor Bowley and Mr. Robertson when, at the request of the Government of India they visited India in 1934; and, it may be added, the general public obviously share the official view that the crop statistics in general are of little value. This is the aspect of the matter which interests me most, for it has a direct bearing on the prospects of working the Development Act. That Act presupposes the possibility of estimating with fair accuracy the outturn of aman paddy both before and after improvements. It would obviously have facilitated the preparation of estimates if the forecasts of the Agricultural Department had been, and had been recognised as, approximations to the

truth: as it is, the general public are so accustomed to disbelieve the forecasts that there is a tendency for them to disbelieve, without examination, any official estimates whatsoever as to the yield of aman paddy.

1 (b). Principal defects in the present method?

2. The defects in the present method of estimating the average outturn of paddy in each district are many. As regards "compilation" if the question is really intended to refer to this aspect only of the preparation of the estimate, I have no information; but the second paragraph of rule 5 which allows a collector to substitute his opinion for the figures collected, indicates that compilation in this sense is not a very important factor in such preparation.

3. To begin with, the whole conception that the acreage under paddy in a thana or the yield to be expected can be estimated after a brief inspection appears to be radically wrong; and I was told by Professor Fisher last year at the time of the Statistical Conference in Calcutta, that corresponding methods in Europe have been proved invariably to be misleading. The officer selected for the work is expected to be able either himself to estimate acreage and outturn from what he has himself seen or to frame an estimate on the strength of the views of others whom he may consider to be able to speak with authority. In either case there is reliance on estimates made by individuals for wide areas. It seems altogether improbable that any officer or any individual can know what are the lands in an area so large as a thana on which aman paddy would normally be grown, or can know what proportion of such lands is high, medium or low land and so more or less likely, according to its class, to be left uncultivated either in years of bad rainfall on account of insufficient water or in years of heavy rain on account of flooding. Without such knowledge he cannot estimate what is the proportion of the land left uncultivated in any year; and so the estimates of acreage must always be wild guesses except in years of exceptionally bad rainfall like 1935 in Burdwan Division when so little land is cultivated that an estimate is comparatively easy. There are not even official figures as to the proportion of high, medium and low lands in each thana, except in the Damodar canal area and in the area in Burdwan, Hooghly and Howrah between the Damodar and the Hooghly rivers covered by the scheme for irrigation from the former river.

4. It is also most improbable that any individual can estimate what will be the yield of paddy from examination of a growing crop over a wide area. There is a most interesting discussion, of the possibility of estimating the yield of other crops in this way, in a paper by F. Yates on the "Application of the Sampling Technique to Crop Extraction and Forecasting" of which Professor Mahalanobis was good enough to show me a copy a couple of years ago. This gives particulars of experiments in England which showed that persons who might be expected to succeed failed to recognise the samples approximating to the mean of a number of samples and failed also when confronted with fields under a crop known to them to give anything like correct estimates, or consistently incorrect estimates, of the crop. These were men who not only were highly qualified but were giving their full attention to the task of making the estimate. In Bengal the officers on whom we rely are not often highly qualified as judges of crops and they base

their views upon casual impressions gained during their tours; they are most unlikely to be as accurate as the men whose failure is described in the paper by Yates, in their estimates of yield.

5. Under rule 5 of the "Rules for the preparation of crop reports in Bengal", the agency which is to do this work is:—

- (a) preferably a Khas Mahal tahsildar if he has duties in the thana which give him opportunities of judging the area and quality of the crop;
- (b) next a Circle Officer "who has been appointed to a circle as a permanent measure", provided that he must not be asked to make an estimate for more than a normal circle of 20 to 40 unions; and
- (c) failing the above the thana officer; but
- (d) in addition, either a Kanungo or a District Agricultural Officer may be employed to make an estimate, without restriction as to permanency, knowledge of the crop or area covered by the estimate.

It is possible that a tahsildar moving among tenants might obtain from them sufficient different estimates of the acreage planted in each village and of the yield from different kinds of land in each to be able to give a fairly close approximation for the figures for a thana; but in most thanas this would be impossible as few tahsildars would be sufficiently interested and the cultivators would probably not be prepared to give to a tahsildar information which would have a direct bearing on the amount of rent which they could pay in any year; in some years at any rate the information would be deliberately distorted.

There is no saying that a Circle Officer who is appointed permanently to a circle will be in a favourable position to give figures for the circle. If he has been appointed recently his estimate will be no better than if he had been appointed temporarily to work in the area; and he may be without any special knowledge of paddy. He is not likely to come into sufficiently intimate touch with enough actual cultivators to be able to collect trustworthy data about individual village.

A thana officer is likely to report what is said about crops by the chowkidars and it is not necessary to discuss how far this sort of information is reliable.

6. Even therefore if the method were sound, the agency used in Bengal for applying it would not be capable of working it. But there is the further difficulty that the rules do not provide for the consistent use of the method. It is laid down in rule 5 that the district returns and estimates "must be based on those received from the interior" and there are detailed instructions in rule 28 regarding the manner in which the data received from the interior (i.e., those relating to the thanas) are to be utilised. But rule 5 immediately goes on to say that the rules "are of course in no way meant to fetter the discretion of the District Officer to reject or amend reports in the light of his own knowledge or experience or to discourage District Officers from obtaining information from sources other than police, e.g., non-official agricultural correspondents and officers of Agricultural Department". This means that there is no certainty whatsoever about the estimates; for even if some idea could be had of the degree of error likely to attend the use of the method, there can be no saying how far in particular years or particular districts the method has been abandoned and

the necessarily imperfect guess work of a District Officer substituted for it. As an illustration of the extent to which the "knowledge and experience" of officers are unreliable, I may mention the fluctuations in the "normal acreage" for Hooghly district. For 1908 and 1909 it was about 276,000 acres; in 1910 255,400; in 1911 234,300; and in 1912 251,400. It then went up to 276,700 where it remained till 1923-24; it then was put at 352,100 which is the figure given in Appendix V of the Manual. In 1928-29 it rose to 352,800 and two years later it fell to 171,700. Four years later it rose to 411,800 acres, at which figure (presumably based on Settlement Department statistics) it has since remained. So far as I can discover, the fluctuations merely reflect the individual estimates of officials and the fact that they have been so wild discredits all reliance on the knowledge of individual officers. The provision in rule 5 for the rejecting or amending of the thana reports at will merely indicates that the framers of the rule were conscious of the deficiencies of the agencies prescribed in it.

7. The figures quoted for Hooghly indicate how far from accurate the figures for normal area in a district can be, and it seems obvious that there will be similar errors in estimating each year the degree to which the area is above or below the normal. As no one in any village knows what the "normal area" under aman paddy is in that village, the tendency is for the estimates to be influenced unduly by the previous year's experience; the villagers can say whether the area cultivated is more or less than that of the previous year and they can say how far it falls short of "16 annas"; but they have no idea of normal. As regards this I cannot find anything in the rules to indicate how the normal acreage is to be ascertained. Rule 11 which discusses "the meaning of normal" appears to discuss only normal outturn and not normal acreage; it is for the most part based on a circular of the Government of India (printed as Appendix VII of the Manual) that deals only with outturn. As the cultivator will cultivate all his land whenever he can, there seems to be little object in having a normal acreage as the standard. It should be noted however that to judge from the Hooghly forecasts for the years 1907 to 1937 (which are the only forecasts that I have examined with any care) an attempt has been made to estimate the acreage in terms of normal acreage, for there are years when the acreage is well above normal; but when one looks at outturn for which 100 per cent. is supposed to represent normal outturn, one finds that it has been treated as maximum outturn, for in no year does the outturn figure rise above 100 per cent. although the period included at least two bumper years.

8. As regards the figure taken for normal yield, there seems to be a tendency to speak as if the yield for all land in a district, or at any rate in a thana, was the same. But it appears to vary very greatly according to the relative level of the land inside a catchment area. I attach a graph showing the yield from high, medium and low land varieties of paddy (which must, I presume, correspond more or less to the yields from high, medium and low land) on the Chinsura Farm. It is most unfortunate, from the point of view of these figures, that there should have been irrigation in certain years: the irrigation is from some tanks near the high land and from some ditches which have water in them only when there has been some good rain, but it has been sufficient to enable land to be transplanted and to yield a crop which otherwise would have remained uncultivated. Another factor which

has made it difficult to use the figures is that in order to expedite multiplication of seed the Farm Authorities have employed labourers in large numbers in years of badly distributed rainfall, so as to take advantage of short spells of favourable rain, in a manner impossible to ordinary cultivators. Probably these two factors have combined to reduce the differences in yield from the three classes of land at the Chinsurah Farm: but it is obvious that normal yield for one class will not be the same as normal yield from another; and in the absence of figures regarding the varying proportions of such classes (and of other classes also which are recognised elsewhere) in different thanas, the figure for normal outturn for the district is probably very far from the truth.

9. The "Normal Yield" for a district is based largely on crop-cutting experiments and it seems clear that these as carried out at present are bound to be misleading. The essence of the system is the ability of the officer to select an average field, in each village chosen as typical on an area, in which to make the cut. The experiments mentioned in the paper by F. Yates, already referred to, show that this is an impossibility. Further even if the error due to this was small, there is the difficulty that the selection of an average plot in years of drought must lead to error; in 1934 the only crops in part of Birbhum outside the irrigated area of the Bakreswar Canal were on land which benefited by seepage from irrigated land; and crop-cutting experiments were accordingly made there. They were perhaps representative of such crops as existed that year but they gave no sort of information to the possibilities of the land under ordinary conditions. Again in 1927-28 which was a year of extremely bad rainfall in Burdwan the crop-cutting experiments gave an average of 31.4 maunds per acre, a figure impossible except in irrigated areas or in low areas which received waters from surrounding higher lands. Again the experiments are far too few to justify any conclusions about yields. Apart from defects attaching to the method adopted there appear to be defects in the treatment of the materials collected. Mr. McLean, the Director of Agriculture, in 1936 remarked in regard to some criticisms, which I made of the quinquennial crop-cutting reports for Burdwan that a further complication is that—

"the statistical section of my office was instructed by Finlow to omit any experiments which did not appear to be taken on average fields. This, of course, is entirely wrong as it is the function of the man making the crop cutting to decide whether a field is average or not and it has nothing to do with the compiler. I have been through the figures from 1932-33 to 1935-36 and found that, instead of 115 experiments made over the four years, 47 experiments have only been taken into account. The assistant in charge then told me of Finlow's orders and said that he had excluded low returns in Burdwan as he himself owned land in the district which never, even in the worst years, gave less than 6 or 7 maunds per bigha. His land is commanded by the Eden Canal. As he has been in the office for 36 years, you may take it that the averages as shown in the quinquennial reports are highly embellished".

The immediate practical importance of all this is that these fictitious figures for yield in Burdwan were used by the Damodar Canal Levy

Enquiry Committee set up by the Congress to prove that there was no appreciable increase in the Damodar Canal irrigated area; they compared what were in effect figures for outturn from the Eden Canal irrigated area with the estimates of outturn from the Damodar Canal irrigated area and concluded that the increase was small. As wide publicity was given to this report, the result is that people in other areas where irrigation schemes were proposed hesitated to accept them; and the prospects of applying Dr. Bentley's remedy for the malaria which prevails in the decadent areas has become so much the more remote. It is needless to say that estimates of "normal yield" based on data such as these crop-cutting experiments furnish must be viewed with suspicion.

10. The fact that I do not recapitulate the objections made by Professor Bowley and Mr. Robertson in their "Scheme for an Economic Census of India" does not indicate disagreement with them. I am assuming that the Committee will take them into account and I do not presume to think that I can reproduce them in a manner which would be any improvement on the original.

Questions 1 (c) and (d). Remedies and alternative methods.

11. As regards remedies, there are none which I can suggest in the existing system: it seems to me essential to substitute for the estimates or guesses of individuals a system based on actual inquiries as to the yield from different areas. This would necessitate a delay in preparing the estimates which would not appear till after the crop was harvested. In so far as such estimates are needed in order that Government may have warning of the probability of scarcity or famine in any area (and I doubt if really they are used in Bengal for this purpose) the delay would be a disadvantage; and obviously Collectors would have to collect information regarding the danger of a failure of crop just as they do at present. But in any other respect I cannot see that a delay of a few months would matter in consideration of the much greater value of figures which could be trusted within a known percentage.

12. The first alternative method to be discussed is obviously that recommended by the Commission on Agriculture, i.e., the method employed for ascertaining the area under jute. Dr. Bowley and Mr. Robertson remark about this that it "is based on a detailed return on a printed form in each village showing the area under jute field by field, and this process is calculated to give accurate totals if properly supervised"; they consider that the expense of applying this method to other crops "would be moderate when considered in relation to the great importance of making good this great deficiency in Indian crop statistics"; and they add "in fact this is by far the most important reform needed". My comment on this is that experts from England find it very difficult to believe that there is any deliberate manipulation of data by the reporting agency. The various mathematical tests applied are designed to eliminate accidental errors as far as possible, but it is not realised that often the persons collecting the figures have made no effort to be accurate. Professor Fisher, for example, expressed the utmost astonishment, verging on incredulity when I told him of the deliberate perversion of figures by officers who collected data in the jute random sampling experiment of 1935-36. Dr. Bowley and

Mr. Robertson do not discuss why the jute forecast figures are usually wrong, or any rate considered by the trade to be wrong; but their remark about the process being "properly supervised" shows that they do not contemplate the possibility of deliberate wholesale mis-statements by the reporting agency. There can be no doubt whatsoever that there are such mis-statements; almost every one concerned is interested in having high prices for raw jute and interested therefore in having as small an area as possible reported under jute. There may be occasional exceptional years when the tendency is the other way: for example, in the first year of the jute restriction scheme people thought it to their advantage to exaggerate the areas which had been planted with jute the year before, in order that they might get the credit for reducing the cultivation of jute without actually doing so; and it is likely that rumours of a possible scheme of compulsory jute restriction would if believed cause them to exaggerate the figures in the actual jute schedules. However, the fact that there is a direct money return to be expected from filling up the schedules in a way that may affect the price undoubtedly is an incentive to filling them up. I doubt whether anyone would go to the trouble of filling up similar schedules about paddy; the labour involved would be very great, if the work were properly done, and there would be nothing to gain from doing it, or even pretending to do it, in most places. An exception would be in areas where there was any likelihood of the application of the Development Act. In these areas people who disliked the idea of being made to pay improvement levy after an improvement would seek to prevent the improvement from being carried out, by exaggerating the present yield, and those who were desperately anxious to have the improvement would minimise the reported yield in order to show that their need was great. But I cannot believe that in any area whatsoever would the method laid down for ascertaining the area under jute be successful as a method for ascertaining the area under aman paddy.

13. By far the best method of ascertaining the area under paddy would be to take aero photos of strips of land in each district. It is a system which was sanctioned by Government for ascertaining the area under jute in Dinajpur in 1936 as part of the random sampling survey; it was not, however, actually adopted because the trial-photographs failed to distinguish clearly between jute and sugarcane at various stages. If the photographs were found to differentiate between paddy and other crops, the method would give results of very considerable accuracy. It is said to have been used lately in America for checking whether farmers who receive subsidies for leaving fields uncultivated have actually so left them. The expense would naturally be considerable and except in areas where there was some immediate reason for wanting really accurate figures (e.g., in areas where the Development Act might be applied) it would probably be useless to think of applying this method.

14. The above would be a variety of random sampling; and it is natural to consider this next. I do not know why this should be described as an indirect method of compilation in contrast with the present method which is in essence a system of sampling without randomisation and without any detailed examination of the samples, and therefore extremely indirect. There can, I think, be no doubt whatsoever regarding the advisability of using this method of randomisation if the cost is not prohibitive.

15. It is probably known to the committee that random sampling of aman paddy has this year been tried on a very large scale in the area of Burdwan, Hooghly and Howrah, which would be affected by the irrigation scheme mentioned in paragraph 3 of this note. I have not the time to summarise it; but it is expected to show what is the area under aman, what is the yield from land of each of four classes and from soil of different kinds, what is the yield from different types of paddy and what percentage of the land is occupied by *ails*. It contemplated the examination of 250,000 samples; it is too early to say how many of these will be found to have aman paddy on them; thirty per cent., representing land not under cultivation, ought not to, while other crops and early harvesting will account for a further large percentage. The only comment which I wish to make is that the experiment was deliberately of a very intensive nature, because we wished to derive from its results such data as would enable mathematicians to calculate precisely how few experiments would be needed to produce figures sufficiently accurate to be useful. It would be wrong therefore to attempt to calculate from this year's figures what would be the cost of the method when applied in the proper way. What was this year's actual cost I have not heard. The rough estimate originally was between Rs. 25,000 and Rs. 30,000 for an area of rather more than 1,000 square miles. But even if the work were done on much cheaper lines it would obviously be an extremely expensive method when applied to the whole province and it is useless to propose that it should be adopted generally. It might be utilised, however, to obtain data which could be used in conjunction with rainfall statistics though the expense of even this would be considerable.

16. It should be mentioned that even this method is liable to be vitiated by prejudice. It was found in last year's crop-cutting experiments in the Damodar Canal area that people who hoped to get the rate of improvement levy reduced had torn out ears of paddy from the areas where the random crop-cutting experiments were to be made.

17. During the classification of lands in the Burdwan-Hooghly-Howrah area already referred to, a partial attempt was made to discover what had been the yield in villages on lines which it might be possible to follow instead of having random sampling. The idea was that intelligent cultivators in each village should be asked, first, what were in their opinion 16-anna crops for individual fields high, medium and low which they know intimately; secondly, what area in each such field had been left uncultivated in particular years for lack of rain; and thirdly, what had been the actual yield of the individual fields in those years. If sufficient such inquiries had been made, the results would, I believe, have been statistically significant. The inquiries were made in 768 villages out of 1,770 villages in the 1,057 square miles covered by the classification. The results have not been analysed. My impression, derived from the figures relating to three villages chosen at random, is that the inquiries were made not regarding individual fields of different classes but regarding whole classes of land in each village; and, if this was so, the results would be so much the less valuable. (If it was so, it was due, I should say, to obscurity in the letter in which I suggested to the Director of Land Records that the inquiry should be made.) If it were possible for such inquiries to be made each year by Circle Officers and others after the actual harvest was known, the results would be much better than under the

present method. As there would not be enough officers for every village to be visited, some scheme of randomisation would appear to be necessary if this method were tried at all; but the difficulty about randomisation is that, when inaccessible areas have to be examined as a result, it is almost impossible for busy officers to go to them at the right time and then there are omissions or actual misrepresentations.

18. This difficulty would not arise if it were possible to select really typical areas for investigation in each thana or if it were possible to say how the areas investigated compared with other lands in the thana. There are probably no really typical areas and, if there are, they are not necessarily within easy reach of officers. But it should not be impossible to know how the selected areas compare with others. For this purpose it would be necessary to classify every field according to (1) the prevailing rainfall, (2) its soil, (3) its relative level inside a catchment area, and (4) its incidental advantages, e.g., irrigation facilities, or disadvantages, exposure to flood. Classification of this sort was done in the Damodar Canal area and in the areas which would be affected by the proposed irrigation scheme in Burdwan, Hooghly and Howrah; a brief description of it will be found on pages 10 and 11 of my note on the "Damodar Canal and the Bengal Development Act". If the land under investigation had been analysed in this way, it would be possible to apply the results of even one experiment to a whole thana provided that the rainfall was approximately the same; and so it would suffice if each Circle Officer made inquiries each year, as to either (a) the actual results, or (b) the results expected by all the cultivators for their individual fields (according as the harvest had or had not been completed when the inquiry was made) for compact areas of perhaps 20 or 30 acres each of high, medium, low or exceptionally low land, or whatever the local classes might be. As the rainfall varies in any year for even adjacent areas it would be necessary for such inquiries to be made in several different places; but complete randomisation would not be necessary.

19. It would obviously be a very big business to classify all the fields in every district. It cost Rs. 31,739 to classify the fields in the 1,770 villages situated in the 1,057 square miles which were covered by the classification referred to in paragraph 17: and there is no chance of getting funds for classifying the whole province. It might however be possible to have the class and soil of each settlement plot marked on the 16-inch settlement maps by the village people themselves. The actual work is not beyond their capacity and the classes are those which they themselves recognise: but it would be necessary for officers to visit each village in order that the classes recognised in different areas might be correlated. The objection that the people would not be sufficiently interested to do this may be true; but it is one thing to ask men to make an elaborate and difficult inquiry every year and another to ask them to make a comparatively simple inquiry once, and success might perhaps be hoped for. If this method proved impossible the only course would be to accept the estimate of experienced Agricultural Department Officers as to the relative proportion of land of each class in each thana; but I doubt whether the results would be of much use. Mr. Finlow told me that the Chinsura Farm lands might be taken as typical of the lands in the area covered by the new irrigation scheme in Burdwan, Hooghly and Howrah: and in a sense they undoubtedly are. But the classification of the farm lands compares as

follows with that of the lands in the whole area (rough approximation). The figures are percentages.

	Farm.	Whole area.
High	19	21
Medium	54	48
Low	27	31

In most places in Western Bengal low land gives far the heaviest yield: and in some places low land is exposed to floods and yields less on the average than medium. So such differences might be very important.

20. If the classification of land could be effected as proposed it would become possible to use figures of outturn maintained by gentlemen who have an interest in farming. An instance is Mr. Manmohan Singh Roy who has maintained for the past 11 years the most admirable detailed records of yield and cost of production for each of the various crops grown on his farm at Makalpur. Such records would be a valuable check on figures given by ordinary cultivators.

21. It might be possible to make an estimate of outturn from an examination of rainfall figures, considered in relation to reports of agricultural calamities, such as high winds at harvest time, floods or insect pests. I do not say that sufficient data exist at present; but they might be collected, and in time the method would become practicable. I discussed the idea to some extent on pages 6-15 of my "Remarks on the Damodar Canal Assessment under the Bengal Development Act". The assumption is that if we have for any year details of the area transplanted and of the yield with a given rainfall and find a similar rainfall in another year, we may expect a similar area to be transplanted and a similar yield to be obtained, or in other words, that these two things bear in any given area a constant relation to the rainfall. It would not be true in areas where there were alternative crops and where the market prices influence the area, and, in any area, other factors such as are noted above would have to be taken into account; but it might prove a useful guide in Western Bengal where jute is not widely grown. The difficulty is to know what "similar rainfall" means: and here the solution suggested is to follow Dr. Hector's standard of rainfall required by aman paddy. I attach graphs which show the method,

- (a) for Chinsurah Farm 1920, 1921 and 1924 numbered II, III and IV,
- (b) for Chinsura Farm 1938 numbered V,
- (c) for Amta and Howrah 1938 numbered VI and VII, and
- (d) for Hooghly, Serampore and Arambagh 1938 numbered VIII, IX and X.

Black represents progressive rainfall, red the extent to which the month's rainfall fell short of Dr. Hector's standards and green the extent to which it exceeded them. It is obvious that this method enables similarities in the rainfall to be distinguished readily.

22. The system cannot be used if it fails to allow the yield from the same land in different years to be calculated: and therefore a

comparison of graph V with graphs II, III and IV is most interesting. The following is a note which I wrote, after receiving the rainfall figures, on 29th October 1938.

"If these rainfall figures for the Chinsura Farm are typical of the whole district the outlook is gloomy. Compared with Dr. Hector's standards (as taken in my note for the Damodar Assessment Committee) the rainfall is as follows (in inches):—

		May.	June.	July.	August.	September.	October.
Plus	..	8.85	..	..	4.57	..	..
Minus	..	..	1.12	5.29	..	1.70	2.39

On the balance (neglecting May), the rainfall is 5.93 in defect and even taking the extra rain of May into account, we cannot but consider it to fall short of the minimum of 40 inches needed during the cultivation season for a normally good crop.

The years on record at the Chinsura Farm which appear to be at all parallel are as follows:—

	1920	May.	June.	July.	August.	September.	October.
Plus	..	3.27	..	..	8.93	0.62	1.07
Minus	1.75	4.12	..	..	..

This looks as if it ought to be much better than the 1938 distribution; more in August (though mostly in the middle of the month) and an adequate supply instead of a shortage in the important months of September-October. Yet the transplantation was 28 per cent. short and outturn 14.3 maunds per acre transplanted and 10.3 per acre available.

	1921.	May.	June.	July.	August.	September.	October.
Plus	..	0.11	..	..	12.82	0.52	..
Minus	2.22	4.38	..	..	0.25

Transplantation was 21 per cent. short; but it should be noted that most of the August rain came late in the month; perhaps too late to remedy the July shortage. One would have thought, however, that the yield should have been fairly good with an adequate August supply and no failure in September and October. Actually the outturn per acre transplanted was extremely bad—only 8.55 maunds.

	1924.	May.	June.	July.	August.	September.	October.
Plus	..	5.37	..	..	3.03	6.37	..
Minus	0.84	4.91	..	..	0.39

This should have been a better year than 1938. But the area transplanted was short by 40 per cent. and the yield was only 13·27 maunds per acre cultivated and 10·2 maunds per acre available. There was irrigation in this year on the Chinsura Farm.

I should expect that transplantation would be something like 30 per cent. in defect and outturn 13 or 14 maunds per acre transplanted, i.e., that the outturn per acre available would be only 9 to 10 maunds (if the proportions of high, medium and low land remain approximately the same as in the years 1920, 1921 and 1924) against a figure of 28 maunds for a full crop (16 annas).

The guess may be vitiated by the growing practice of irrigating on the farm."

It may be noted that actually irrigation was practised on so extensive a scale this year, from the new tube-well, as to make it impossible to utilise the figures of yield; but the adjoining Agricultural School does not use irrigation and the figures for yield on its lands may serve the purpose.

23. If graph V for Chinsura Farm is compared with graph VIII for Hooghly, some interesting facts appear. Hooghly shows 10 inches more rain and there was an appreciable shortage only in July whereas at the farm there were shortages in June, July, September and October. It is obvious that the area transplanted and the yield would be better according to the Hooghly rainfall; but there are no figures of yield on record which allow one to guess what would be the effect of a shortage only in July. Graph IX for Serampore with its surplus in June and smaller deficit in July indicates, I think, better results than graph VIII for Hooghly in spite of the greater deficit in September; and so also does graph X, Arambagh.

24. I have included graphs VI and VII for Howrah district only because they show how with a similar rainfall in general there may be differences in distribution, which will have very serious results on the crops. It seems certain that Howrah district this year will have a paddy crop a good deal worse than that of Hooghly district. I have not had time to copy the graphs which I prepared for Burdwan district (Sadar and Farn at Burdwan; Idilpur near Burdwan and Kalna) but they indicate better results than those of Hooghly. On the strength of them I am prepared to believe the reports of the local officers that the crops will not be unsatisfactory. The Burdwan graphs reveal the same striking differences at neighbouring rainfall recording stations as those for Hooghly and the Chinsura Farm: and it is a question whether this is sufficient reason to reject any method which relies on scrutiny of rainfall records. Also there is the risk of inaccurate recording to be considered; some of the rainfall records for Chinsura Farm appear to have been wrongly recorded.

Question 2 (a): Possibility of compiling fairly accurate statistics of inter-district movements of paddy and rice.

When I was Director of Civil Supplies in 1918-19 such statistics were compiled in my office. Control over food prices was then enforced

by control over distribution of railway wagons and for this purpose it was essential to know what was moving from one district to another. The figures which used then to be compiled by the Director of Statistics did not suffice and my predecessor, Mr. C. F. Beadel, decided to have statistics compiled in the office: the actual arrangements were made after I took over. I quote the following from a report which I sent to Government in 1920.

“The Railway and River Steamer Companies arranged for every stationmaster in Bengal to furnish weekly statements of the consignments of food-grains which had left or reached his station, and of the places to and from which they had been booked. From these, in accordance with a system devised by Babu N. N. Ghosh who was put on special duty for the purpose, a summary of arrivals and despatches was made for each district, and the totals thus obtained were shown on diagonal statements. From these again it could be seen at a glance how much each district had exported to, or imported from, each other district inside Bengal or each province outside it. Of course these figures were defective as a guide to the total movements of food-grains. In Eastern and North Bengal country-boats moved enormous quantities of paddy, and it was only for such of this traffic as went by canal that we got any figures at all; and even in West Bengal where most of the traffic goes by rail there were at times appreciable amounts moved by bullock cart: for example, when railway restrictions made export from Bankura difficult the paddy found its way by road into Burdwan district. Another defect was that, since at the outset a knowledge of the precise dates on which import or export took place did not seem of great moment, the amounts exported from each district were shown week by week as imports against the district of destination, in order to avoid the necessity for compiling two sets of diagonal statements. This made no practical difference so long as the railways were able to handle traffic inside the province promptly; but towards the middle of 1919 when consignments sometimes took two or three weeks to reach destinations inside Bengal, there was an appreciable error involved; no change could then be made, since the figures were of use only for purposes of comparison and there was no time to hark back and revise those for previous months. But for all their faults the statistics which were compiled in this office were very much more useful than any previously available and so far as they went, were accurate; compared with the figures since compiled by the Director of Statistics, the figures for exports during 1919 have proved to be deficient by 0.1 per cent., and those for imports by 0.4 per cent. only”.

I do not know to what use such figures could be put at ordinary times. Nor can I say now what was the cost; roughly I estimate that Babu N. N. Ghose drew Rs. 400 or so per month and there were six or eight clerks drawing from Rs. 40 to Rs. 100 per month; excluding cost of accommodation, the cost of compilation alone was probably about Rs. 11,000 per year. The railway and steamer companies supplied the figures for nothing, so far as I know; the cost to them must have been considerable. It may perhaps be reckoned to have been the same as the cost of compilation.

Question 4: Statistics of movements of paddy between provinces.

I can only say that in the famine year, 1919, movements by cart into Chota Nagpur and those by boat into Bihar and to and from Assam were sufficiently large as to affect all our calculations. Even under those conditions when the Government of India were prepared to give any powers in reason for the asking, we failed to devise any method which seemed likely to give us even approximately accurate figures for this traffic. The cost would obviously be enormous and the results most untrustworthy since supervision would obviously be a matter of great difficulty.

Question 5 (a): Statistics of stocks of paddy.

The attempt to obtain these failed in every province of India in the autumn of 1918 when war condition prevailed and Government were anxious to get accurate figures. The cost of obtaining them would be prohibitive. In the Central Provinces the result of attempting to discover what the stocks were was that they were hidden and great hardship resulted. As Director of Civil Supplies for Bengal I failed to get any information at all that stood scrutiny. Again in June 1919 a census of foodstuff in every district gave no real result, though useful in other ways.

Question 15: Yield of paddy and cost of production.

If the statistics discussed under question 1 are incorrect, no one can say what is the average yield per acre in different districts. Some individuals can give perhaps the average yield for particular fields per acre; but I doubt it.

As to cost of production I suggest that reference be made to the conclusions of Rai Bahadur Bijoy Behari Mukherjee who as Director of Land Records worked out the figures for Burdwan in connection with the assessment of improvement levy in the Damodar Canal area. I collected figures myself which can be doubtless obtained without difficulty from the Secretariat: they are summarised in the printed note in which I examined the possibility of financing irrigation by an improvement levy. Naturally the cost differs for every field and in every year. The great difficulty in discussing cost is to know what value to put on the cultivator's own labour; if it is assumed that he ought to be able to live off the produce of five months' work in the year the value of his labour becomes so high that no cultivation of paddy shows a profit.

19. Fixation of minimum prices for paddy.

I can see no reason why an attempt to fix minimum prices should be any more successful than the attempt to fix maximum prices in 1919. In July of that year Government issued notifications under the Articles of Commerce Ordinance of 1914 fixing maximum prices for rice in Dacca and Mymensingh. This action was very popular at the time but its results were bad. No one sold rice in Dacca or Mymensingh and panic followed which led to famine prices in these districts and eventually to withdrawal of supplies and to exceedingly high prices in other districts. If minimum prices are fixed for paddy, dealers will not buy paddy in the places where the prices are enforced. Enforcement will be difficult and except in places where energetic officials actually live the prices fixed will not be observed. Transactions will not be public and so prices will be worse and not better.

An economic price should leave the cultivator a fair margin of profit which together with his profits from other crops will enable him to maintain himself and to pay rent and taxes. The amount required for maintenance should include education of children, medical attention and also some savings.

17. Yes, by intensive cultivation, the use of improved methods and consolidation of holdings.

18. Yes.

19. (a) I do not think it is feasible to fix minimum prices for paddy and rice.

(b) and (c) Do not arise.

20. Does not arise.

21. Does not arise.

22. Does not arise.

23. Does not arise.

24. Between 4 to 8 annas per maund.

25. Middlemen cannot be dispensed with. Even supposing they are excluded it will not have any appreciable effect in reducing the difference between the price paid to the cultivator and the price paid by the miller or exporter.

26. (a) Not to any great extent.

(b) Yes, but not always.

27. The cultivators are often deceived owing to the existence of different standards of weights and measurements.

28. (a) As a rule paddy is taken over from the cultivator on the threshing floor either by middlemen acting on behalf of the mills, by speculators, or by local traders, or by his landlord.

(b) The practice has grown as a result of local conditions and the only unsatisfactory feature is the ignorance and poverty of cultivators which put them at a disadvantage in the matter of bargaining with middlemen. Want of adequate storing arrangements is also another disadvantage of the cultivators.

(c) *Vide* answer to (a) above.

29. There are, as in the case of all crops, allowances and trade customs.

30. (a) Yes, 80 tolas per seer and 40 seers per maund.

(b) No great difficulty anticipated.

31. (a) There is no system of grading as far as I know. There are different prices for different kinds of paddy.

(b), (c) and (d) I do not think such is feasible. The main varieties of paddy and rice are well-known everywhere.

32. (a) and (b) Presumably they do affect prices paid to cultivators in the case of purchases on a big scale, but not appreciably in the case of small local purchases.

(c) Producing cultivators have no sure knowledge of prices and their movements in the Calcutta whole-sale market.

(d) Development of wireless broadcasting.

33. (a) No.
 (b), (c), (d), (e) and (f) Do not arise.
34. (a), (b), (c) (i) and (ii) and (d) Such societies might be successfully organized.
35. (a) Yes.
 (b) Conveyance charges are not excessive.
36. (a) The principal varieties of rice are (1) Kazla, White Patna (table), boiled Patna and Ballam.
- Imports are from Burma and rice imported therefrom is called Rangoon rice.
- (b), (c) and (d) Are matters for the trade.
37. It is for the Trade to reply.
38. Such an organization is practicable.

Replies submitted by Mr. H. P. V. Townend, Commissioner, Burdwan Division, to questionnaire on Paddy and Rice.

Question 1 (a): Is the present method of estimating outturn satisfactory?

1. To the best of my belief there is no one who considers the present estimates of the annual outturn of aman paddy to be satisfactory; and the method of preparing them must therefore be condemned. In 1918 and 1919 when I was Director of Civil Supplies and it was essential to know what was the yield of paddy in Bengal, in order that Government might decide how much should be allowed to go out of the province, I found all calculation based on the crop forecasts to be defective. Since then the forecasts have to this extent improved that the areas suitable for paddy are no longer a matter of guess work but are known from the Settlement Reports of the various districts; but the general standard of accuracy has not improved greatly because there is no real machinery for discovering how much of the areas suitable for paddy are in any given year utilised for paddy or what is the yield from the areas so utilised. The Royal Commission on Agriculture made some caustic remarks on the method of estimating areas under crops in Bengal, describing them as "admittedly mere guesses and, not infrequently, demonstrably absurd guesses": and they recommended that the system used for collecting statistics regarding jute should be adopted for collecting those regarding other crops. As the jute statistics are condemned by the trade as most unsatisfactory, it is obvious that, if the Agricultural Commission was right, there is nothing to be said in favour of the statistics relating to other crops including paddy. The view taken by the Commission was accepted as correct by Professor Bowley and Mr. Robertson when, at the request of the Government of India they visited India in 1934; and, it may be added, the general public obviously share the official view that the crop statistics in general are of little value. This is the aspect of the matter which interests me most, for it has a direct bearing on the prospects of working the Development Act. That Act presupposes the possibility of estimating with fair accuracy the outturn of aman paddy both before and after improvements. It would obviously have facilitated the preparation of estimates if the forecasts of the Agricultural Department had been, and had been recognised as, approximations to the

truth: as it is, the general public are so accustomed to disbelieve the forecasts that there is a tendency for them to disbelieve, without examination, any official estimates whatsoever as to the yield of aman paddy.

1 (b). Principal defects in the present method?

2. The defects in the present method of estimating the average outturn of paddy in each district are many. As regards "compilation" if the question is really intended to refer to this aspect only of the preparation of the estimate, I have no information; but the second paragraph of rule 5 which allows a collector to substitute his opinion for the figures collected, indicates that compilation in this sense is not a very important factor in such preparation.

3. To begin with, the whole conception that the acreage under paddy in a thana or the yield to be expected can be estimated after a brief inspection appears to be radically wrong; and I was told by Professor Fisher last year at the time of the Statistical Conference in Calcutta, that corresponding methods in Europe have been proved invariably to be misleading. The officer selected for the work is expected to be able either himself to estimate acreage and outturn from what he has himself seen or to frame an estimate on the strength of the views of others whom he may consider to be able to speak with authority. In either case there is reliance on estimates made by individuals for wide areas. It seems altogether improbable that any officer or any individual can know what are the lands in an area so large as a thana on which aman paddy would normally be grown, or can know what proportion of such lands is high, medium or low land and so more or less likely, according to its class, to be left uncultivated either in years of bad rainfall on account of insufficient water or in years of heavy rain on account of flooding. Without such knowledge he cannot estimate what is the proportion of the land left uncultivated in any year; and so the estimates of acreage must always be wild guesses except in years of exceptionally bad rainfall like 1935 in Burdwan Division when so little land is cultivated that an estimate is comparatively easy. There are not even official figures as to the proportion of high, medium and low lands in each thana, except in the Damodar canal area and in the area in Burdwan, Hooghly and Howrah between the Damodar and the Hooghly rivers covered by the scheme for irrigation from the former river.

4. It is also most improbable that any individual can estimate what will be the yield of paddy from examination of a growing crop over a wide area. There is a most interesting discussion, of the possibility of estimating the yield of other crops in this way, in a paper by F. Yates on the "Application of the Sampling Technique to Crop Extraction and Forecasting" of which Professor Mahalanobis was good enough to show me a copy a couple of years ago. This gives particulars of experiments in England which showed that persons who might be expected to succeed failed to recognise the samples approximating to the mean of a number of samples and failed also when confronted with fields under a crop known to them to give anything like correct estimates, or consistently incorrect estimates, of the crop. These were men who not only were highly qualified but were giving their full attention to the task of making the estimate. In Bengal the officers on whom we rely are not often highly qualified as judges of crops and they base

their views upon casual impressions gained during their tours; they are most unlikely to be as accurate as the men whose failure is described in the paper by Yates, in their estimates of yield.

5. Under rule 5 of the "Rules for the preparation of crop reports in Bengal", the agency which is to do this work is:—

- (a) preferably a Khas Mahal tahsildar if he has duties in the thana which give him opportunities of judging the area and quality of the crop;
- (b) next a Circle Officer "who has been appointed to a circle as a permanent measure", provided that he must not be asked to make an estimate for more than a normal circle of 20 to 40 unions; and
- (c) failing the above the thana officer; but
- (d) in addition, either a Kanungo or a District Agricultural Officer may be employed to make an estimate, without restriction as to permanency, knowledge of the crop or area covered by the estimate.

It is possible that a tahsildar moving among tenants might obtain from them sufficient different estimates of the acreage planted in each village and of the yield from different kinds of land in each to be able to give a fairly close approximation for the figures for a thana; but in most thanas this would be impossible as few tahsildars would be sufficiently interested and the cultivators would probably not be prepared to give to a tahsildar information which would have a direct bearing on the amount of rent which they could pay in any year; in some years at any rate the information would be deliberately distorted.

There is no saying that a Circle Officer who is appointed permanently to a circle will be in a favourable position to give figures for the circle. If he has been appointed recently his estimate will be no better than if he had been appointed temporarily to work in the area; and he may be without any special knowledge of paddy. He is not likely to come into sufficiently intimate touch with enough actual cultivators to be able to collect trustworthy data about individual village.

A thana officer is likely to report what is said about crops by the chowkidars and it is not necessary to discuss how far this sort of information is reliable.

6. Even therefore if the method were sound, the agency used in Bengal for applying it would not be capable of working it. But there is the further difficulty that the rules do not provide for the consistent use of the method. It is laid down in rule 5 that the district returns and estimates "must be based on those received from the interior" and there are detailed instructions in rule 28 regarding the manner in which the data received from the interior (i.e., those relating to the thanas) are to be utilised. But rule 5 immediately goes on to say that the rules "are of course in no way meant to fetter the discretion of the District Officer to reject or amend reports in the light of his own knowledge or experience or to discourage District Officers from obtaining information from sources other than police, e.g., non-official agricultural correspondents and officers of Agricultural Department". This means that there is no certainty whatsoever about the estimates; for even if some idea could be had of the degree of error likely to attend the use of the method, there can be no saying how far in particular years or particular districts the method has been abandoned and

the necessarily imperfect guess work of a District Officer substituted for it. As an illustration of the extent to which the "knowledge and experience" of officers are unreliable, I may mention the fluctuations in the "normal acreage" for Hooghly district. For 1908 and 1909 it was about 276,000 acres; in 1910 255,400; in 1911 234,300; and in 1912 251,400. It then went up to 276,700 where it remained till 1923-24; it then was put at 352,100 which is the figure given in Appendix V of the Manual. In 1928-29 it rose to 352,800 and two years later it fell to 171,700. Four years later it rose to 411,800 acres, at which figure (presumably based on Settlement Department statistics) it has since remained. So far as I can discover, the fluctuations merely reflect the individual estimates of officials and the fact that they have been so wild discredits all reliance on the knowledge of individual officers. The provision in rule 5 for the rejecting or amending of the thana reports at will merely indicates that the framers of the rule were conscious of the deficiencies of the agencies prescribed in it.

7. The figures quoted for Hooghly indicate how far from accurate the figures for normal area in a district can be, and it seems obvious that there will be similar errors in estimating each year the degree to which the area is above or below the normal. As no one in any village knows what the "normal area" under aman paddy is in that village, the tendency is for the estimates to be influenced unduly by the previous year's experience; the villagers can say whether the area cultivated is more or less than that of the previous year and they can say how far it falls short of "16 annas"; but they have no idea of normal. As regards this I cannot find anything in the rules to indicate how the normal acreage is to be ascertained. Rule 11 which discusses "the meaning of normal" appears to discuss only normal outturn and not normal acreage; it is for the most part based on a circular of the Government of India (printed as Appendix VII of the Manual) that deals only with outturn. As the cultivator will cultivate all his land whenever he can, there seems to be little object in having a normal acreage as the standard. It should be noted however that to judge from the Hooghly forecasts for the years 1907 to 1937 (which are the only forecasts that I have examined with any care) an attempt has been made to estimate the acreage in terms of normal acreage, for there are years when the acreage is well above normal; but when one looks at outturn for which 100 per cent. is supposed to represent normal outturn, one finds that it has been treated as maximum outturn, for in no year does the outturn figure rise above 100 per cent. although the period included at least two bumper years.

8. As regards the figure taken for normal yield, there seems to be a tendency to speak as if the yield for all land in a district, or at any rate in a thana, was the same. But it appears to vary very greatly according to the relative level of the land inside a catchment area. I attach a graph showing the yield from high, medium and low land varieties of paddy (which must, I presume, correspond more or less to the yields from high, medium and low land) on the Chinsura Farm. It is most unfortunate, from the point of view of these figures, that there should have been irrigation in certain years: the irrigation is from some tanks near the high land and from some ditches which have water in them only when there has been some good rain, but it has been sufficient to enable land to be transplanted and to yield a crop which otherwise would have remained uncultivated. Another factor which

has made it difficult to use the figures is that in order to expedite multiplication of seed the Farm Authorities have employed labourers in large numbers in years of badly distributed rainfall, so as to take advantage of short spells of favourable rain, in a manner impossible to ordinary cultivators. Probably these two factors have combined to reduce the differences in yield from the three classes of land at the Chinsurah Farm: but it is obvious that normal yield for one class will not be the same as normal yield from another; and in the absence of figures regarding the varying proportions of such classes (and of other classes also which are recognised elsewhere) in different thanas, the figure for normal outturn for the district is probably very far from the truth.

9. The "Normal Yield" for a district is based largely on crop-cutting experiments and it seems clear that these as carried out at present are bound to be misleading. The essence of the system is the ability of the officer to select an average field, in each village chosen as typical on an area, in which to make the cut. The experiments mentioned in the paper by F. Yates, already referred to, show that this is an impossibility. Further even if the error due to this was small, there is the difficulty that the selection of an average plot in years of drought must lead to error; in 1934 the only crops in part of Birbhum outside the irrigated area of the Bakreswar Canal were on land which benefited by seepage from irrigated land; and crop-cutting experiments were accordingly made there. They were perhaps representative of such crops as existed that year but they gave no sort of information to the possibilities of the land under ordinary conditions. Again in 1927-28 which was a year of extremely bad rainfall in Burdwan the crop-cutting experiments gave an average of 31.4 maunds per acre, a figure impossible except in irrigated areas or in low areas which received waters from surrounding higher lands. Again the experiments are far too few to justify any conclusions about yields. Apart from defects attaching to the method adopted there appear to be defects in the treatment of the materials collected. Mr. McLean, the Director of Agriculture, in 1936 remarked in regard to some criticisms, which I made of the quinquennial crop-cutting reports for Burdwan that a further complication is that—

"the statistical section of my office was instructed by Finlow to omit any experiments which did not appear to be taken on average fields. This, of course, is entirely wrong as it is the function of the man making the crop cutting to decide whether a field is average or not and it has nothing to do with the compiler. I have been through the figures from 1932-33 to 1935-36 and found that, instead of 115 experiments made over the four years, 47 experiments have only been taken into account. The assistant in charge then told me of Finlow's orders and said that he had excluded low returns in Burdwan as he himself owned land in the district which never, even in the worst years, gave less than 6 or 7 maunds per bigha. His land is commanded by the Eden Canal. As he has been in the office for 36 years, you may take it that the averages as shown in the quinquennial reports are highly embellished".

The immediate practical importance of all this is that these fictitious figures for yield in Burdwan were used by the Damodar Canal Levy

Enquiry Committee set up by the Congress to prove that there was no appreciable increase in the Damodar Canal irrigated area; they compared what were in effect figures for outturn from the Eden Canal irrigated area with the estimates of outturn from the Damodar Canal irrigated area and concluded that the increase was small. As wide publicity was given to this report, the result is that people in other areas where irrigation schemes were proposed hesitated to accept them; and the prospects of applying Dr. Bentley's remedy for the malaria which prevails in the decadent areas has become so much the more remote. It is needless to say that estimates of "normal yield" based on data such as these crop-cutting experiments furnish must be viewed with suspicion.

10. The fact that I do not recapitulate the objections made by Professor Bowley and Mr. Robertson in their "Scheme for an Economic Census of India" does not indicate disagreement with them. I am assuming that the Committee will take them into account and I do not presume to think that I can reproduce them in a manner which would be any improvement on the original.

Questions 1 (c) and (d). Remedies and alternative methods.

11. As regards remedies, there are none which I can suggest in the existing system: it seems to me essential to substitute for the estimates or guesses of individuals a system based on actual inquiries as to the yield from different areas. This would necessitate a delay in preparing the estimates which would not appear till after the crop was harvested. In so far as such estimates are needed in order that Government may have warning of the probability of scarcity or famine in any area (and I doubt if really they are used in Bengal for this purpose) the delay would be a disadvantage; and obviously Collectors would have to collect information regarding the danger of a failure of crop just as they do at present. But in any other respect I cannot see that a delay of a few months would matter in consideration of the much greater value of figures which could be trusted within a known percentage.

12. The first alternative method to be discussed is obviously that recommended by the Commission on Agriculture, i.e., the method employed for ascertaining the area under jute. Dr. Bowley and Mr. Robertson remark about this that it "is based on a detailed return on a printed form in each village showing the area under jute field by field, and this process is calculated to give accurate totals if properly supervised"; they consider that the expense of applying this method to other crops "would be moderate when considered in relation to the great importance of making good this great deficiency in Indian crop statistics"; and they add "in fact this is by far the most important reform needed". My comment on this is that experts from England find it very difficult to believe that there is any deliberate manipulation of data by the reporting agency. The various mathematical tests applied are designed to eliminate accidental errors as far as possible, but it is not realised that often the persons collecting the figures have made no effort to be accurate. Professor Fisher, for example, expressed the utmost astonishment, verging on incredulity when I told him of the deliberate perversion of figures by officers who collected data in the jute random sampling experiment of 1935-36. Dr. Bowley and

Mr. Robertson do not discuss why the jute forecast figures are usually wrong, or any rate considered by the trade to be wrong; but their remark about the process being "properly supervised" shows that they do not contemplate the possibility of deliberate wholesale mis-statements by the reporting agency. There can be no doubt whatsoever that there are such mis-statements; almost every one concerned is interested in having high prices for raw jute and interested therefore in having as small an area as possible reported under jute. There may be occasional exceptional years when the tendency is the other way: for example, in the first year of the jute restriction scheme people thought it to their advantage to exaggerate the areas which had been planted with jute the year before, in order that they might get the credit for reducing the cultivation of jute without actually doing so; and it is likely that rumours of a possible scheme of compulsory jute restriction would if believed cause them to exaggerate the figures in the actual jute schedules. However, the fact that there is a direct money return to be expected from filling up the schedules in a way that may affect the price undoubtedly is an incentive to filling them up. I doubt whether anyone would go to the trouble of filling up similar schedules about paddy; the labour involved would be very great, if the work were properly done, and there would be nothing to gain from doing it, or even pretending to do it, in most places. An exception would be in areas where there was any likelihood of the application of the Development Act. In these areas people who disliked the idea of being made to pay improvement levy after an improvement would seek to prevent the improvement from being carried out, by exaggerating the present yield, and those who were desperately anxious to have the improvement would minimise the reported yield in order to show that their need was great. But I cannot believe that in any area whatsoever would the method laid down for ascertaining the area under jute be successful as a method for ascertaining the area under aman paddy.

13. By far the best method of ascertaining the area under paddy would be to take aero photos of strips of land in each district. It is a system which was sanctioned by Government for ascertaining the area under jute in Dinajpur in 1936 as part of the random sampling survey; it was not, however, actually adopted because the trial-photographs failed to distinguish clearly between jute and sugarcane at various stages. If the photographs were found to differentiate between paddy and other crops, the method would give results of very considerable accuracy. It is said to have been used lately in America for checking whether farmers who receive subsidies for leaving fields uncultivated have actually so left them. The expense would naturally be considerable and except in areas where there was some immediate reason for wanting really accurate figures (e.g., in areas where the Development Act might be applied) it would probably be useless to think of applying this method.

14. The above would be a variety of random sampling; and it is natural to consider this next. I do not know why this should be described as an indirect method of compilation in contrast with the present method which is in essence a system of sampling without randomisation and without any detailed examination of the samples, and therefore extremely indirect. There can, I think, be no doubt whatsoever regarding the advisability of using this method of randomisation if the cost is not prohibitive.

15. It is probably known to the committee that random sampling of aman paddy has this year been tried on a very large scale in the area of Burdwan, Hooghly and Howrah, which would be affected by the irrigation scheme mentioned in paragraph 3 of this note. I have not the time to summarise it; but it is expected to show what is the area under aman, what is the yield from land of each of four classes and from soil of different kinds, what is the yield from different types of paddy and what percentage of the land is occupied by *ails*. It contemplated the examination of 250,000 samples; it is too early to say how many of these will be found to have aman paddy on them; thirty per cent., representing land not under cultivation, ought not to, while other crops and early harvesting will account for a further large percentage. The only comment which I wish to make is that the experiment was deliberately of a very intensive nature, because we wished to derive from its results such data as would enable mathematicians to calculate precisely how few experiments would be needed to produce figures sufficiently accurate to be useful. It would be wrong therefore to attempt to calculate from this year's figures what would be the cost of the method when applied in the proper way. What was this year's actual cost I have not heard. The rough estimate originally was between Rs. 25,000 and Rs. 30,000 for an area of rather more than 1,000 square miles. But even if the work were done on much cheaper lines it would obviously be an extremely expensive method when applied to the whole province and it is useless to propose that it should be adopted generally. It might be utilised, however, to obtain data which could be used in conjunction with rainfall statistics though the expense of even this would be considerable.

16. It should be mentioned that even this method is liable to be vitiated by prejudice. It was found in last year's crop-cutting experiments in the Damodar Canal area that people who hoped to get the rate of improvement levy reduced had torn out ears of paddy from the areas where the random crop-cutting experiments were to be made.

17. During the classification of lands in the Burdwan-Hooghly-Howrah area already referred to, a partial attempt was made to discover what had been the yield in villages on lines which it might be possible to follow instead of having random sampling. The idea was that intelligent cultivators in each village should be asked, first, what were in their opinion 16-anna crops for individual fields high, medium and low which they know intimately; secondly, what area in each such field had been left uncultivated in particular years for lack of rain; and thirdly, what had been the actual yield of the individual fields in those years. If sufficient such inquiries had been made, the results would, I believe, have been statistically significant. The inquiries were made in 768 villages out of 1,770 villages in the 1,057 square miles covered by the classification. The results have not been analysed. My impression, derived from the figures relating to three villages chosen at random, is that the inquiries were made not regarding individual fields of different classes but regarding whole classes of land in each village; and, if this was so, the results would be so much the less valuable. (If it was so, it was due, I should say, to obscurity in the letter in which I suggested to the Director of Land Records that the inquiry should be made.) If it were possible for such inquiries to be made each year by Circle Officers and others after the actual harvest was known, the results would be much better than under the

present method. As there would not be enough officers for every village to be visited, some scheme of randomisation would appear to be necessary if this method were tried at all; but the difficulty about randomisation is that, when inaccessible areas have to be examined as a result, it is almost impossible for busy officers to go to them at the right time and then there are omissions or actual misrepresentations.

18. This difficulty would not arise if it were possible to select really typical areas for investigation in each thana or if it were possible to say how the areas investigated compared with other lands in the thana. There are probably no really typical areas and, if there are, they are not necessarily within easy reach of officers. But it should not be impossible to know how the selected areas compare with others. For this purpose it would be necessary to classify every field according to (1) the prevailing rainfall, (2) its soil, (3) its relative level inside a catchment area, and (4) its incidental advantages, e.g., irrigation facilities, or disadvantages, exposure to flood. Classification of this sort was done in the Damodar Canal area and in the areas which would be affected by the proposed irrigation scheme in Burdwan, Hooghly and Howrah; a brief description of it will be found on pages 10 and 11 of my note on the "Damodar Canal and the Bengal Development Act". If the land under investigation had been analysed in this way, it would be possible to apply the results of even one experiment to a whole thana provided that the rainfall was approximately the same; and so it would suffice if each Circle Officer made inquiries each year, as to either (a) the actual results, or (b) the results expected by all the cultivators for their individual fields (according as the harvest had or had not been completed when the inquiry was made) for compact areas of perhaps 20 or 30 acres each of high, medium, low or exceptionally low land, or whatever the local classes might be. As the rainfall varies in any year for even adjacent areas it would be necessary for such inquiries to be made in several different places; but complete randomisation would not be necessary.

19. It would obviously be a very big business to classify all the fields in every district. It cost Rs. 31,739 to classify the fields in the 1,770 villages situated in the 1,057 square miles which were covered by the classification referred to in paragraph 17: and there is no chance of getting funds for classifying the whole province. It might however be possible to have the class and soil of each settlement plot marked on the 16-inch settlement maps by the village people themselves. The actual work is not beyond their capacity and the classes are those which they themselves recognise: but it would be necessary for officers to visit each village in order that the classes recognised in different areas might be correlated. The objection that the people would not be sufficiently interested to do this may be true; but it is one thing to ask men to make an elaborate and difficult inquiry every year and another to ask them to make a comparatively simple inquiry once, and success might perhaps be hoped for. If this method proved impossible the only course would be to accept the estimate of experienced Agricultural Department Officers as to the relative proportion of land of each class in each thana; but I doubt whether the results would be of much use. Mr. Finlow told me that the Chinsura Farm lands might be taken as typical of the lands in the area covered by the new irrigation scheme in Burdwan, Hooghly and Howrah: and in a sense they undoubtedly are. But the classification of the farm lands compares as

follows with that of the lands in the whole area (rough approximation). The figures are percentages.

	Farm.	Whole area.
High	19	21
Medium	54	48
Low	27	31

In most places in Western Bengal low land gives far the heaviest yield: and in some places low land is exposed to floods and yields less on the average than medium. So such differences might be very important.

20. If the classification of land could be effected as proposed it would become possible to use figures of outturn maintained by gentlemen who have an interest in farming. An instance is Mr. Manmohan Singh Roy who has maintained for the past 11 years the most admirable detailed records of yield and cost of production for each of the various crops grown on his farm at Makalpur. Such records would be a valuable check on figures given by ordinary cultivators.

21. It might be possible to make an estimate of outturn from an examination of rainfall figures, considered in relation to reports of agricultural calamities, such as high winds at harvest time, floods or insect pests. I do not say that sufficient data exist at present; but they might be collected, and in time the method would become practicable. I discussed the idea to some extent on pages 6-15 of my 'Remarks on the Damodar Canal Assessment under the Bengal Development Act'. The assumption is that if we have for any year details of the area transplanted and of the yield with a given rainfall and find a similar rainfall in another year, we may expect a similar area to be transplanted and a similar yield to be obtained, or in other words, that these two things bear in any given area a constant relation to the rainfall. It would not be true in areas where there were alternative crops and where the market prices influence the area, and, in any area, other factors such as are noted above would have to be taken into account; but it might prove a useful guide in Western Bengal where jute is not widely grown. The difficulty is to know what "similar rainfall" means: and here the solution suggested is to follow Dr. Hector's standard of rainfall required by aman paddy. I attach graphs which show the method,

- (a) for Chinsurah Farm 1920, 1921 and 1924 numbered II, III and IV,
- (b) for Chinsura Farm 1938 numbered V,
- (c) for Amta and Howrah 1938 numbered VI and VII, and
- (d) for Hooghly, Serampore and Arambagh 1938 numbered VIII, IX and X.

Black represents progressive rainfall, red the extent to which the month's rainfall fell short of Dr. Hector's standards and green the extent to which it exceeded them. It is obvious that this method enables similarities in the rainfall to be distinguished readily.

22. The system cannot be used if it fails to allow the yield from the same land in different years to be calculated: and therefore a

comparison of graph V with graphs II, III and IV is most interesting. The following is a note which I wrote, after receiving the rainfall figures, on 29th October 1938.

“If these rainfall figures for the Chinsura Farm are typical of the whole district the outlook is gloomy. Compared with Dr. Hector’s standards (as taken in my note for the Damodar Assessment Committee) the rainfall is as follows (in inches):—

		May.	June.	July.	August.	September.	October.
Plus	..	8.85	..	..	4.57	..	..
Minus	..	..	1.12	5.29	..	1.70	2.39

On the balance (neglecting May), the rainfall is 5.93 in defect and even taking the extra rain of May into account, we cannot but consider it to fall short of the minimum of 40 inches needed during the cultivation season for a normally good crop.

The years on record at the Chinsura Farm which appear to be at all parallel are as follows:—

1920		May.	June.	July.	August.	September.	October.
Plus	..	3.27	..	..	8.93	0.62	1.07
Minus	..	..	1.75	4.12	..	..	..

This looks as if it ought to be much better than the 1938 distribution; more in August (though mostly in the middle of the month) and an adequate supply instead of a shortage in the important months of September-October. Yet the transplantation was 28 per cent. short and outturn 14.3 maunds per acre transplanted and 10.3 per acre available.

1921.		May.	June.	July.	August.	September.	October.
Plus	..	0.11	..	..	12.82	0.52	..
Minus	..	..	2.22	4.38	..	..	0.25

Transplantation was 21 per cent. short; but it should be noted that most of the August rain came late in the month; perhaps too late to remedy the July shortage. One would have thought, however, that the yield should have been fairly good with an adequate August supply and no failure in September and October. Actually the outturn per acre transplanted was extremely bad—only 8.55 maunds.

1924.		May.	June.	July.	August.	September.	October.
Plus	..	5.37	..	..	3.03	6.37	..
Minus	..	..	0.84	4.91	..	..	0.39

This should have been a better year than 1938. But the area transplanted was short by 40 per cent. and the yield was only 13·27 maunds per acre cultivated and 10·2 maunds per acre available. There was irrigation in this year on the Chinsura Farm.

I should expect that transplantation would be something like 30 per cent. in defect and outturn 13 or 14 maunds per acre transplanted, i.e., that the outturn per acre available would be only 9 to 10 maunds (if the proportions of high, medium and low land remain approximately the same as in the years 1920, 1921 and 1924) against a figure of 28 maunds for a full crop (16 annas).

The guess may be vitiated by the growing practice of irrigating on the farm."

It may be noted that actually irrigation was practised on so extensive a scale this year, from the new tube-well, as to make it impossible to utilise the figures of yield; but the adjoining Agricultural School does not use irrigation and the figures for yield on its lands may serve the purpose.

23. If graph V for Chinsura Farm is compared with graph VIII for Hooghly, some interesting facts appear. Hooghly shows 10 inches more rain and there was an appreciable shortage only in July whereas at the farm there were shortages in June, July, September and October. It is obvious that the area transplanted and the yield would be better according to the Hooghly rainfall; but there are no figures of yield on record which allow one to guess what would be the effect of a shortage only in July. Graph IX for Seraampore with its surplus in June and smaller deficit in July indicates, I think, better results than graph VIII for Hooghly in spite of the greater deficit in September; and so also does graph X, Arambagh.

24. I have included graphs VI and VII for Howrah district only because they show how with a similar rainfall in general there may be differences in distribution, which will have very serious results on the crops. It seems certain that Howrah district this year will have a paddy crop a good deal worse than that of Hooghly district. I have not had time to copy the graphs which I prepared for Burdwan district (Sadar and Farm at Burdwan; Idilpur near Burdwan and Kalna) but they indicate better results than those of Hooghly. On the strength of them I am prepared to believe the reports of the local officers that the crops will not be unsatisfactory. The Burdwan graphs reveal the same striking differences at neighbouring rainfall recording stations as those for Hooghly and the Chinsura Farm: and it is a question whether this is sufficient reason to reject any method which relies on scrutiny of rainfall records. Also there is the risk of inaccurate recording to be considered; some of the rainfall records for Chinsura Farm appear to have been wrongly recorded.

Question 2 (a): Possibility of compiling fairly accurate statistics of inter-district movements of paddy and rice.

When I was Director of Civil Supplies in 1918-19 such statistics were compiled in my office. Control over food prices was then enforced

by control over distribution of railway wagons and for this purpose it was essential to know what was moving from one district to another. The figures which used then to be compiled by the Director of Statistics did not suffice and my predecessor, Mr. C. F. Beadel, decided to have statistics compiled in the office: the actual arrangements were made after I took over. I quote the following from a report which I sent to Government in 1920.

“The Railway and River Steamer Companies arranged for every stationmaster in Bengal to furnish weekly statements of the consignments of food-grains which had left or reached his station, and of the places to and from which they had been booked. From these, in accordance with a system devised by Babu N. N. Ghosh who was put on special duty for the purpose, a summary of arrivals and despatches was made for each district, and the totals thus obtained were shown on diagonal statements. From these again it could be seen at a glance how much each district had exported to, or imported from, each other district inside Bengal or each province outside it. Of course these figures were defective as a guide to the total movements of food-grains. In Eastern and North Bengal country-boats moved enormous quantities of paddy, and it was only for such of this traffic as went by canal that we got any figures at all; and even in West Bengal where most of the traffic goes by rail there were at times appreciable amounts moved by bullock cart: for example, when railway restrictions made export from Bankura difficult the paddy found its way by road into Burdwan district. Another defect was that, since at the outset a knowledge of the precise dates on which import or export took place did not seem of great moment, the amounts exported from each district were shown week by week as imports against the district of destination, in order to avoid the necessity for compiling two sets of diagonal statements. This made no practical difference so long as the railways were able to handle traffic inside the province promptly; but towards the middle of 1919 when consignments sometimes took two or three weeks to reach destinations inside Bengal, there was an appreciable error involved; no change could then be made, since the figures were of use only for purposes of comparison and there was no time to hark back and revise those for previous months. But for all their faults the statistics which were compiled in this office were very much more useful than any previously available and so far as they went, were accurate; compared with the figures since compiled by the Director of Statistics, the figures for exports during 1919 have proved to be deficient by 0·1 per cent., and those for imports by 0·4 per cent. only”.

I do not know to what use such figures could be put at ordinary times. Nor can I say now what was the cost; roughly I estimate that Babu N. N. Ghose drew Rs. 400 or so per month and there were six or eight clerks drawing from Rs. 40 to Rs. 100 per month; excluding cost of accommodation, the cost of compilation alone was probably about Rs. 11,000 per year. The railway and steamer companies supplied the figures for nothing, so far as I know; the cost to them must have been considerable. It may perhaps be reckoned to have been the same as the cost of compilation.

Question 4: Statistics of movements of paddy between provinces.

I can only say that in the famine year, 1919, movements by cart into Chota Nagpur and those by boat into Bihar and to and from Assam were sufficiently large as to affect all our calculations. Even under those conditions when the Government of India were prepared to give any powers in reason for the asking, we failed to devise any method which seemed likely to give us even approximately accurate figures for this traffic. The cost would obviously be enormous and the results most untrustworthy since supervision would obviously be a matter of great difficulty.

Question 5 (a): Statistics of stocks of paddy.

The attempt to obtain these failed in every province of India in the autumn of 1918 when war condition prevailed and Government were anxious to get accurate figures. The cost of obtaining them would be prohibitive. In the Central Provinces the result of attempting to discover what the stocks were was that they were hidden and great hardship resulted. As Director of Civil Supplies for Bengal I failed to get any information at all that stood scrutiny. Again in June 1919 a census of foodstuff in every district gave no real result, though useful in other ways.

Question 15: Yield of paddy and cost of production.

If the statistics discussed under question 1 are incorrect, no one can say what is the average yield per acre in different districts. Some individuals can give perhaps the average yield for particular fields per acre; but I doubt it.

As to cost of production I suggest that reference be made to the conclusions of Rai Bahadur Bijoy Behari Mukherjee who as Director of Land Records worked out the figures for Burdwan in connection with the assessment of improvement levy in the Damodar Canal area. I collected figures myself which can be doubtless obtained without difficulty from the Secretariat: they are summarised in the printed note in which I examined the possibility of financing irrigation by an improvement levy. Naturally the cost differs for every field and in every year. The great difficulty in discussing cost is to know what value to put on the cultivator's own labour; if it is assumed that he ought to be able to live off the produce of five months' work in the year the value of his labour becomes so high that no cultivation of paddy shows a profit.

19. Fixation of minimum prices for paddy.

I can see no reason why an attempt to fix minimum prices should be any more successful than the attempt to fix maximum prices in 1919. In July of that year Government issued notifications under the Articles of Commerce Ordinance of 1914 fixing maximum prices for rice in Dacca and Mymensingh. This action was very popular at the time but its results were bad. No one sold rice in Dacca or Mymensingh and panic followed which led to famine prices in these districts and eventually to withdrawal of supplies and to exceedingly high prices in other districts. If minimum prices are fixed for paddy, dealers will not buy paddy in the places where the prices are enforced. Enforcement will be difficult and except in places where energetic officials actually live the prices fixed will not be observed. Transactions will not be public and so prices will be worse and not better.

**Replies submitted by Rai Bahadur J. P. Roy, Collector, Berhampore,
to the questionnaire on paddy and rice.**

1. (a) Yes.

(b) The normal area under crop as has to be shown in the return requires revision inasmuch as this area was ascertained during the settlement operation since the completion of which the area under cultivation have undergone variations. Increasing density of population has expanded cultivation in some areas while diluvion has reduced the area in other places. The annual outturn shown in terms of the normal is therefore defective to the extent of the error lying in the normal area.

(c) These defects can only be remedied by a resurvey which but for the revisional settlement operation must be very expensive.

(d) Does not arise.

(e) The method of random sampling will yield more satisfactory results but the areas for the application of the method should not only be typical for the whole district but as extensive as possible. More accurate results may be expected if a random sampling is made over no less than ten acres of land in each Thana.

2. (a) and (b) Statistics of inter-district movements of paddy and rice will be of no useful purpose. The districts which are mainly paddy growing are well-known throughout the Province and in times of scarcity in any other district no difficulty is experienced in locating the places in the Province where grains would be available. Compilation of such statistics would necessitate an elaborate establishment and involve cost which will hardly be commensurate with the advantages sought.

3. (a) Not necessary.

(b) Does not arise.

4. (1) Not known.

(2) Ditto. Statistics of inter-provincial movements of paddy and rice will be of considerable utility. When a province is faced with an impending scarcity it will be desirable to regulate exports and imports of grains from and to that province with a view to make available as much food-stuff as possible to the famine-stricken people.

5. (a), (b) and (c) It will be difficult to obtain statistics of stocks of paddy and rice in hand without legislation compelling stockists to submit returns of the stocks in hand to a specified authority.

6. (a) On a comparison of the figures given in the Season and Crop Reports and on computation of average demand on the basis of population as given in the Census Report it appears that Bengal produces paddy in normal years to the extent of more than twice the quantity necessary for feeding the entire population.

(b) and (c) Does not arise.

7. (a), (b) and (c) Price of rice depends upon that of paddy. Wide variation between their prices may be possible on account of temporary factors such as excessive rainfall rendering drying and husking of paddy difficult or sudden export of rice in a large quantity from a particular area.

8. Prices of paddy must tend to affect sympathetically the prices other food grains inasmuch as pressure of demand on paddy will be sought to be believed by other substitutes of food and consequently price will equalise among all the food grains.

9. (a), (b) and (c) As the following figures will show the average price of Winter rice in Bengal has steadily increased since 1933-34—

Year	Average price per maund.		
	Rs. a. p.		
1933-34	...	3	0 2
1934-35	...	3	4 4
1935-36	...	7	9 0
1936-37	...	3	8 0

10. (a), (b) and (c) Does not arise.

11. (a), (b) Does not arise.

12. (a), (b), (c) and (d) In spite of the answer to question 9 there can be no denying the fact that prices of paddy have fallen down during recent years particularly compared to the period of post war boom. This fall is the consequences of world depression caused by over-production of all articles by mechanised process of manufacture on large scale. India, or any of her provinces is no longer isolated and so prices here have a tendency to move with the world prices. The depression has not only affected paddy and rice but all commodities agricultural or otherwise and no local causes can be attributed to this phenomenon.

13. Does not arise.

14. (a), (b) and (c) Not known.

15. (a) The average yield of paddy per acre in district Murshidabad is about 15 maunds.

(b) About two rupees.

(c) The average cost has been calculated as follows:—

<i>One bigha of land.</i>		Rs. a. p.		
Manure as. 4 per cart (4)	...	1	0	0
Ploughs as. 6 each	...	0	12	0
Harrowing—two—as. 8 each	...	1	0	0
Preparation of soil and ridges	...	0	8	0
Seedlings	...	1	0	0
Weeding	...	1	4	0
Reaping	...	1	8	0
Rent with cess	...	3	0	0
		10	0	0

One bigha producing five maunds the cost of production per maund is therefore Rs. 2.

The economic price for paddy would be the cost of production plus a suitable margin of profit which will not only sustain the cultivator but also induce him to improve the land and the methods of cultivation. Fifty per cent. profit will not be unfair.

17. Other conditions remaining the same the cultivator's profit can be increased only by reducing the cost of production which is possible by increasing the productivity of land by advanced methods of cultivation.

18. Already replied as per question 17.

19. (a), (b) and (c) Minimum prices for paddy and rice to ensure reasonable profit to the cultivator would be advisable but it would be hardly possible to maintain such prices for a long time. Interference with the economic forces of demand and supply does not produce good results for a long period, so artificial regulation of prices is not recommended.

20. Does not arise.

21. Does not arise.

22. Does not arise.

23. Does not arise.

24. Not known.

25. Elimination of middlemen in dealings of paddy will be impossible when producers are not an organised body and are numerous with small holdings.

26. (a) and (b) In Kandi subdivision cultivators often pledge their crops before harvest to those who make advances for helping the cultivation. In such cases the crop is sold at a lower price than prevailing in the market as agreed upon by stipulation at the time of pledging.

27. False and larger weights are very often used by middlemen while purchasing paddy from the cultivators with the result that the latter get a lower price than prevailing in the market.

28. (a) Cultivators usually sell paddy to middlemen in their villages.

(b) The system is not satisfactory.

(c) Because the cultivator is unaware of the market conditions and is liable to be duped by the middlemen.

29. Not known.

30. (a) Yes. 80 tolas a seer and 40 seers a maund should be the uniform weights.

(b) Penalisation of use of any weights other than the standard ones will facilitate enforcement of such weights.

31. (a) Paddy and rice are at present graded by their different names which distinguish coarse and fine varieties.

(b), (c) and (d) Any other form of standardisation will be doubtful of practical value. I have no suggestion to make in this connection.

32. (a) No.

(b) Does not arise.

(c) No.

(d) It is difficult to suggest any system for dissemination of information regarding the conditions of the Calcutta market to the cultivator until the latter have made a little progress in primary education and organised themselves into producers' body. Under the present conditions propaganda by leaflets or by Radio-broadcasting at suitable markets might remove the difficulty partially.

33. So long as cultivators do not group themselves under producers' associations it is doubtful whether regulated markets will be capable of practical management and productive of any good.

34. Same reply as under question 33.

Sale-supply Societies in regard to jute were a failure. If legislation can be undertaken to ensure proper working of Sale-supply Societies and experimented in connection with jute, cultivators are likely to benefit by dealings through such Societies.

35. (a) Yes.

(b) Conveyance by road and country-boat is cheapest. Other details not known.

36. Not known.

37. Not known.

38. (a) Yes.

(b) and (c) No suggestions to offer.

**Replies submitted by Mr. K. C. Morshed, District Officer, Howrah,
to the questionnaire on paddy and rice.**

Statistics of supply, demand and stocks.

1. (a) No.

(b) Because this is not done by the experts of the Agriculture Department. The principal defects in the present method are that the circumstances about the yield of the plot are not considered while compiling the data and how much of the same are important factors in determining the yield of the plot concerned cannot be judged either by the ignorant cultivator himself or by the officer who has no theoretical knowledge about the same. When generalisations are derived from such data, it is likely that the same would be incorrect more or less.

(c) These defects may be modified.

(i) Yes.

(ii) Yes, by collecting the data through the District Agriculture Officer and his staff of demonstrators, most of whom have very little to do during the harvesting season. Their travelling allowances will be the only extra costs which cannot be much and they will be required to visit only typical areas.

(d) As the reply under (c) stands, separately no other reply is required for this.

(e) Random sampling is a good test to verify the data obtained. This may be done by the Agriculture Department through its inspecting staff in selected areas. I think it will be useful in case of paddy crop.

2. (a) Such statistics may be obtained at the railway stations and steamer ghats of the district concerned. But the difficulty will be as regards other conveyances which carry loads of paddy and rice from district to district. It is possible however to insist that all boats,

carts and other vehicular conveyance carrying loads from one district to another should be required to obtain license from the foreign district office which will be valid either for the whole province or for a particular district and licensees holding such licenses should be required to submit a statement of their movements made in every calendar month with particulars of the loads carried and the destination where these were disposed of. A small license fee in different scales for a specified period or otherwise should be obtained to maintain the records of such statistics. Such fees should be credited to the fund of District Board of the district in which the same will be realised.

(b) This would enable the Government departments to know—

- (i) how various commodities are disposed of,
- (ii) how profits are made,
- (iii) where shortage of any particular article is keenly felt or is likely to be keen, and
- (iv) how an effective control of such movements if necessary (as in war times) may be possible.

3. (a) (i) Yes.

(ii) Yes, such statistics will be useful to improve local conditions.

(b) (i) Most of the districts of Bengal have been cadastrally surveyed. Particulars of different kinds of crops grown in each such area were obtained and are being obtained by the Settlement Department. These particulars supplemented by the data obtained by the District Agricultural Officer and his staff in every season would make compilation of such statistics easy. Besides a periodical survey of the area under cultivation by aeroplane will show whether any fresh area has been added to the area under cultivation already noted or whether any area has been given up from cultivation.

(ii) The costs for these establishments should be met from the Provincial revenues in the usual way through the departments concerned.

4. (i) No.

(ii) The scheme for compiling these statistics has been given in the reply under 2 (a) and (b). It will be necessary to consolidate the data thus obtained for the whole province in each half year. The costs incurred will be justified merely for raising such data to the plane of scientific investigation.

5. (a), (b) and (c) If statistics of yearly outturn of paddy and rice be available, along with particulars of the various movements of paddy and rice from district to district and to outside province the stock available may be learnt and so also the consumption of the same in each district or in the province as a whole may be approximately estimated on the statistics of population, to make the same fairly accurate it is advisable to arrange quinquennial census. Except for the census no special legislation is necessary for this.

6. (a), (b) and (c) No reply can be given to these except by presuming that available statistics are all fairly correct which they are not.

7. (a), (b) and (c) Same remarks as made in reply to 6.

8. There seems to be such correlation but without special data on the subject it will be difficult to specify the same.

9. (a) The prices have not been falling steadily since 1934—rather they rose and are rising mostly since 1934.

(b) The price of common paddy was on the average below Re. 1 per maund in 1934 but that price became higher in 1935 and still higher in 1936 when there was bumper crop in this district. Now it is selling at Rs. 2 per maund. The price of rice similarly varied during these years.

(c) No fall appears to have occurred since 1934 in this district.

10. (a), (b) and (c) As I do not assume that there has been fall in prices since 1934, the question under this head do not require answer.

11. (a), (b) Same remarks as made under 10 (a), (b), (c).

12. (a), (b) and (c) Same remarks as made under 10 (a), (b), (c).

13. (i) and (ii) Same remarks as made under 10 (a), (b), (c).

14. (a) Not very much. (b) Slightly. (c) This is almost negligible.

15. (a) In Howrah the average yield is about 15 maunds per acre.

(b) (c)

	Rs.	a.	p.
Cost of ploughing per bigha (including daily wages of a hal and labour for paddy) ...	2	0	0
Cost of paddy seeds for a bigha ...	0	4	0
Cost of transplanting, etc., per bigha ...	0	12	0
Cost of weeding per bigha ...	0	8	0
Cost of harvesting per bigha (and stocking) ...	0	8	0
Total ...	4	0	0
Rent to landlord per bigha ...	1	8	0
Casting and thrashing ...	0	8	0
Total ...	6	0	0
Total yield per bigha ...	5	mds.	
Average price at Rs. 1-8 per md. ...	7	8	0
Net profit to cultivator ...	1	8	0

Thus it appears that cost of production per maund of common paddy is Rs. 1-3-3.

16. The profits obtained above at the current price show that the cultivator gets about Rs. 4-9 per maund of paddy. This is near about 20 per cent. of the prices. This is fairly an economic price by which the cultivator is sure to get back what he spends on the crop but a fair price is one which makes the whole production to be a source of profit and this will be a fair price if it gives at least 25 per cent. of margin in the prices obtained.

17. Yes. By scientific cultivation and better marketing.

18. Yes.

19. Prices cannot be governed by a fixed rule and I do not think it safe to fix such minimum prices for paddy and rice which may be grown everywhere almost.

20. Such a scheme may be a good scheme for the League of Nations if nations agree to abide by the same.

21, 22 and 23. No reply to these required after the answer to question No. 20 already noted.

24. No definite data available to determine this.

25. If the Government purchases the entire stock even then middleman's business will not be stopped. It is hopeless to exclude the middlemen in any case.

26. (a) About 33 per cent. in areas where paddy is the main crop.
(b) It does affect.

27. In these days the differences of weights and measures are duly noted and do not make any great change in the standard prices obtained.

Marketing.

28. (a) By selling to creditors in advance for loans obtained.

(b) By selling to retail purchaser at hâts and markets and at home.

(c) By selling to purchaser at wholesale rate through village mahajans or dalals to outsiders.

(d) No.

(e) The principal defects are that the cultivators cannot obtain the prevailing rates by such sales on most of the occasions.

29. I am not aware of such allowances except that the man who weighs paddy for the cultivator takes a small toll in kind out of the paddy brought to sale; and this cannot affect the prices obtained.

30, 31. (a) Yes. 80 tolas=seer, and 40 seers=1 maund.

(b) The difficulties may be avoided if all weights used by the dealers bear Government test house mark on the same. I consider this as very important.

32. (a) Yes. (b) Slightly.

(c) Spread of information about prices through newspapers and Radio is leading to better knowledge about prices of commodities.

(d) It may be useful to use Government publicity department to issue bulletins in this connection and circulate the same.

Regulated Market.

33. (a), (b), (c), (d), (e) and (f) I do not think there is scope for regulated markets in India's rural areas. The masses are neither educated enough nor solvent enough for such markets.

Co-operative Societies.

34. Co-operative Sale Societies in moderate scale may be useful but such societies have not been popular in this country, and the people are averse to any organised effort and such societies are not likely to succeed.

Communications.

35. (a) Not very much.
 (b) (i) By road. No.
 (ii) By Railway. Yes.
 (iii) By steamer. Not much.
 (iv) By boat. No.

About 20 per cent. of the prices roughly at the maximum and 10 per cent. at the minimum.

Foreign marketing.

36, 37 and 38. No data available to enable specific replies to these questions. A marketing department and commercial museum with branches in all districts may prove very useful about foreign marketing.

Replies submitted by Mr. A. D. Khan, Collector of Dinajpur, to the questionnaire regarding outturn of paddy.

1. (a) No.

(b) To get an idea of the yield in any particular area I think a much larger staff is necessary than the Agriculture Department has now. There should be a considerable number of experiments at different places regularly spaced.

(c) I do not think it possible to remedy these defects without increase in the staff and consequently substantial increase in cost.

(d) Instead of selecting a few typical plots of 10 kathas or 1 bigha as is done now, a few typical villages of different tracts should be selected. It would be possible to get accurate statistics of area under crop by training up villagers to act as Amin and to do khasra work. The method adopted should be the same as during census. If, however, men cannot be secured without remuneration, a small fee of Rs. 8 and to 10 a month could be given. A man could go round the villages with a 16" cadastral map and a printed list of plots and note the area of each plot under Aman, jute or whatever crop there was. This scheme presupposes ability to read a cadastral map, but this can be acquired with training. The success of this scheme will depend upon the constant supervision of officials, but it will be useless to entrust them to Circle Officers who are already overworked. One Inspector could be attached to each thana and would work under the supervision of the Subdivisional Officer and Circle Officers. The pay might be between Rs. 36 and Rs. 40 per month.

- (e) I am not in favour of random sampling.

2. (a) Compilation of statistics of inter-district movement of paddy is feasible if the special staff mentioned above is employed. Movements by rail and steamer can be found from booking figures at the various stations. To check the cart or country boat traffic arrangements will have to be made for checking at points on the district boundary to note the weights and destination of the passing

rice and paddy carts or boats. Alternatively, an enquiry from paddy merchants at all important bandars would probably produce reasonably accurate results. But I doubt whether the cost will be justified by the uses to which the figures might be put.

3. (a) I think it is more important to obtain a real idea of the yield of paddy than the area under the crop. Crop cutting experiments may be individually accurate, but unless the experiments are numerous results may be purely accidental. Villagers have a tendency to under-estimate yields and for this reason I recommend that there should be an official agency to perform the experiments.

(b) The same sort of organisation as mentioned in 1 (d). If the census method is adopted the work should be placed under the management of a Committee in each Union.

4. (1) I am not in a position to say.

(2) I do not think that the cost of compilation would be justified.

5. (a) Yes.

(b) By the Special Officers with the help of Presidents, Union Board, who should call every rate-payer and ascertain the figures direct from him. Probably there will be a tendency to understatement, but that will have to be checked by the Special Officers.

(c) No legislation is necessary.

6. I do not know.

7. (a) There is some co-relation between the price of paddy and rice. In this district the price during the last four years of paddy (Aman) has been from Rs. 1-8 to Rs. 1-10 per maund (80 tolas), while rice has been from 10 seers to 12 seers per rupee.

There is some seasonal fluctuation. Most of the paddy comes in the market between January and April. The men possessing reserves will sell in hats throughout the year, and big jotedars also deal wholesale in paddy and keep stock which they release throughout the year. If the price of paddy is Rs. 1-8 per maund in March, it may be Rs. 1-12 or Rs. 1-14 in October.

Under special circumstances the price of rice sometimes does not bear any relation to the price of paddy, for example, this year due to continued rainfall rice could not be prepared from paddy and so the price of rice went up, though that of paddy did not show a corresponding rise. Other factors which affect the price are—

- (1) increase of the price of jute,
- (2) failure of crops in any province or large area,
- (3) heavy continuous rain.

8. There is some co-relation between paddy and say wheat or jute. It appears that the price of jute fell proportionately more than price of paddy between 1928 and 1932. Jute went down from Rs. 9 to Rs. 3 and paddy from Rs. 3 and Rs. 3-8 to Rs. 1-8. Similarly if a sufficient quantity of wheat were available for consumption the price of paddy would be affected. Last year the price of *gur* was Rs. 2 to Rs. 2-8 per maund largely to increased production of cane which was more than the market could absorb.

9. The price has almost been steady since 1934. Only this year there was some marked rise probably due to flood over an extensive area.

10. The fall in the price before 1934 appears to be due to permanent causes:—

- (1) No increase in demand within the country.
- (2) Decrease of outside demand.
- (3) Competition with other countries producing at a cheaper rate and importing their rice here.
- (4) General fall in the prices of all commodities.

11. Factors 2, 3 and 4 noted above are of an international character. Clause 3 may be counteracted by producing cheaper varieties of paddy and increase in the outturn.

12. (a) Due to disproportionate supply of import from outside the province, production does not appear to have increased.

(b) Supply by way of import has increased. Other provinces like Orissa, Assam and Burma export this commodity to Bengal, and this seems to be a permanent phase.

13. It is due to shrinkage in foreign demand.

14. (a) Yes.

(b) Yes.

(c) Export duty is responsible for this fall. Foreign buyers go wherever they find the commodity at a cheaper rate.

15. (a) The average yield of Aman paddy in this district might be 15 to 18 maunds an acre. In a poor year the average might be 14 or 15 maunds, in a good year 18 to 20 maunds. Yields in individual fields might vary from 6 to 30 maunds. A certain amount of land is two-crop land and grows Aus as well as Aman.

(b) Rs. 1-8 per maund.

(c) From investigation among jotedars and cultivators.

16. Perhaps words like "Fair Profit" and "Economic Price" are hardly of much importance when referring to the cultivation of paddy by Bengali raiyats who cultivate with their own ploughs and cattle on their own land with their own labour. However, 25 per cent. over cost of production and marketing might be considered a fair profit.

17. It is difficult to see how the margin of profit can be increased, since paddy cultivation is practically farming for subsistence and the proportion of the crop sold to that consumed by the producer must be small. The cost of production is fixed except for the big jotedars, and marketing costs are not heavy. The only means of increasing the margin is to increase the outturn per acre.

18. I am not sure of the advisability of trying to get a better outturn by improved methods of cultivation. The present ploughs, and the laddering and weeding implements have stood the test of times. They are cheap and easily repaired. The cultivators must have things which can be considered with bamboo or ordinary wood and very inexpensive iron within the capacity of a village blacksmith. I doubt whether big and expensive ploughs will result in such an increase in yield as to make it worthwhile. The same may be said of cattle. The present type survives on a diet of paddy straw and water, with little oilcake and salt. Cattle must be grass fed or fed on grains are very expensive. Of course, there is much room for cattle improvement and better fodder, but at the same time it would not be of much use to saddle the cultivator with expensive breeds of cattle without first improving his economic condition.

In my opinion the best means of increase in outturn is by introducing improved varieties of seeds, as well as teaching the cultivator to employ inexpensive manures like cowdung, leafmoulds and water-hyacinth plants. In some parts where rainfall is insufficient improved irrigation might be tried. In the high lands of the southern portion of this district vegetable crops are grown on land irrigated from tanks, but stretches of paddy lands are only one-crop lands. If more water were available Rabi crops or even Aman crops could be grown. The dissemination of elementary principles of agriculture among the villagers by propaganda would be a great help.

19. I am not in favour of fixing any minimum price of paddy or rice. The present price is not subject to any wild fluctuation and I see no reason for fixing the price; this is a great paddy growing district and much of the paddy comes in the local markets for consumption within a radius of 25 miles of the place of sale. If a minimum price were fixed with the object of increasing the income of the growers with a surplus there would be a corresponding increase in the cost of living of all consumers. The people who would be hit most would be the poor cultivators who do not grow enough paddy for maintenance on their holdings, or who earn their livelihood by catching fish or selling milk or giving labour. Also the village craftsman like the weaver, the potter or chaukidar who have to buy paddy would be adversely affected until he could get a better price for his own articles or for his service.

20-23. Does not arise.

24. The difference in price between paddy sold by cultivators in village hats in the Balurghat area and the price paid by the millowners is about an anna a maund. Jotedars or big villagers sell on small margins.

25. The difference could be reduced, but the margin on which the middleman works is too small to affect the cultivator's price appreciably. I am told by the Settlement Officer that sellers keep themselves well informed by prices in different parts of the district. For example men in the east of Nawabganj will not sell to Berampur or Hili without ascertaining which place offers the better price. Even anna or half an anna a maund is taken into consideration. Similarly villagers living between Atrai and Punnanabha rivers in the south of the district will consider carefully the advantages of selling to Nitpur and Kantabari.

26. There is no practice of pledging crops before harvest in this district. People who run short of stock borrow paddy on *Dehri* system, i.e., borrowing one maund of paddy in Ashar and undertaking to repay $1\frac{1}{2}$ maunds in Falgoun. This is a transaction in kind and has no effect on the cash value of the paddy.

Also the system of repayment does not operate harshly on the borrower, because the lender being a co-villager usually is very accommodating if the borrower is found to be in real difficulties.

27. I do not think standard weights and measures will make much difference to price. In this district the 60 tolas seer prevails in the south and north near Dinajpur, Kumarganj and Gangarampur, the 96 tola-seer is common; to the west (Birol to Raiganj) 100 or 105 tola-seer is used. Paddy has been found to sell at Rs. 1-2 a maund of 60 tola-seer at Hili; on the next day Rs. 1-14 a maund in Dinajpur. This would give a price of Rs. 1-8 and Rs. 1-9 respectively in terms the standard 80 tola-seer. But the introduction of a standard weight would certainly be more convenient.

28. The cultivator usually sells in a local hât to a Bepari or sometimes effects the sale at his homestead. The purchaser who possesses a cart or carts will convey paddy in the vehicle to a big hât or to a big centre like Hili, Berampur, Pulhat or may even take the paddy to exporters at important river side markets like Kantabari and Nitpur.

28. (b) This system is satisfactory so far as the producer and the village Bepari are concerned. It is not so satisfactory where paddy is sold to dalals in the large bundars. The ordinary villager has no knowledge of outside market conditions and has to sell paddy at the price offered by the buyers.

30. Uniform weights and measures are not essential though they would be convenient. If they are introduced it will have to be done with patience. The 80-tola seer and 40-seer maund should be the standard.

32. (a) Yes, it does. The Calcutta wholesale paddy and rice market is an international one and the prices prevailing there affect the buyers at mills and exporting station and hence the price paid to the cultivator.

(b) I do not know.

(c) No (Government might publish the price and supply the same free of cost to union boards for publishing in the local markets. At the same time it is doubtful whether the cultivators would gain much by knowing the price because they have no means of access to that market.

33. I am not in favour of regulated markets which will involve expense and elaborate organisation.

34. (a) Yes.

(b) Educating the cultivator to realise the benefit of such societies and constant supervision by the Co-operative Department to see that the societies are run properly and honestly. No legislation is necessary at present.

35. (a) Yes. The existing condition of roads and rivers in this district makes the country boat and bullock cart the only means of safe conveyance.

The District Board should take up this question on a more organised basis. I do not think cart or country boat charges are really excessive. Railway freight is reported to be excessive, but I am not in a position to criticise.

38. (a) Yes.

(b) On the same lines adopted by the Tea Producer's Association, by propaganda and Trade Agreements.

Replies submitted by Mr. M. Basu, Subdivisional Officer, Kushtia.

Memorandum on the Problem of Paddy and Rice in Bengal.

The position of rice in Bengal is somewhat different from the position of jute. Jute is practically a monopoly of this province and the effect of restriction measures regarding jute on the home and foreign market can consequently be circumscribed within predictable limits. The position of rice however is different. Not merely there are rice-producing centres outside India but, within India also, a substantial

quantity of rice is produced in other provinces, as well, not to say of Burma which has now been separated from India. While in Bengal there are about 21·50 million acres under rice, in Bihar and Orissa 13·93, in Burma 12·91 and in Madras 11·68 and decent quantities in other provinces also. There is a strong internal demand in the Indian provinces and hence not much exportable surplus is usually available but more rice is produced per head of the population in Burma resulting in a considerable exportable surplus over the internal consumption of the province. Now that Burma has been detached from India, this exportable capacity of Burma is bound to have serious repercussions on the trade in rice in India. The Burma trade represents about 50 per cent. of the total production in Burma.

Bengal is nevertheless the largest paddy-growing country in India engaging about 21·5 million of acres out of a total cultivable area of 23·5 millions. It must, therefore, follow that the prosperity of millions in Bengal depends also on the prosperity of the trade in paddy and rice. The low prices of rice prevailing at least since 1933-34 have, however, seriously affected the incomes of the paddy-growing population. To take an example income from rice which was 178 crores of rupees in 1928-29 came down to as low as 85 crores in 1932-33.

The index number of price for rice was 38 for 1933-34 and this low price was maintained till about 1936-37 when there was a slight rise in price, the index number standing at 55. This was perhaps due to the slight rise in the price of jute with which the price of rice seems somewhat correlated. The index again fell in the last quarter of 1937-38 to 42 as a result of the persistent pressure of the imports of cheap rice which always brings down the price of Bengal rice to its own level. Incidentally, it may be remarked that the price movements of other agricultural produce have been seen to vary with movements in the price of jute. Jute commands such a dominant position in the commercial scheme of the country side that the price of jute is often correlated with the price of other agricultural produce. Not merely the acreage of jute determines the acreage of other crops and therefore their production and supply but the purchasing power of cultivators depending on their income from jute also determines to a large extent the demand for other agricultural produce and therefore their price.

This steady fall in price of paddy and rice is in general due to a set of causes, some of which are no doubt permanent but others of a more transient and therefore of remediable character. The permanent cause is attributable to the loss of export markets due to increase of cheap exports to these markets from other countries, viz., Siam, Indo-China, China, etc., under special trade pacts. This factor is of an international character and as such beyond the control of the Government of India. The fall in price is also due to increase in cheap imports of Rangoon rice but this is a factor which is easily removable and within the control of the Government of India as these imports can either be shut out or better regulated by an effective system of tariffs.

To repeat, the fall in price is due to (a) a slight increase in home production due to restriction of jute acreage, (b) cheap imports from Burma which by their very cheapness tend to dominate the Bengal market and also increase the total available supply, and (c) loss of the export trade which correspondingly glut the home market with surplus produce. This is not all; for price is not merely affected by this increase of supply on the one side and loss of demand on the other. It is also simultaneously affected by the possibility, always present, of

additional cheap imports coming in and dumping the home market if the slightest tendency to a rise in price is indicated. It is also clear that the loss of foreign demand is partly attributable to export duties. The position of jute in a scheme of export duties is quite different. Jute is a typical monopoly in relation to available demand ignoring over production of the fibre and the export tax on jute can easily be shifted to foreign consumers. In the case of rice, however, there are obviously rival supplies in the international market and the burden of export duties cannot be shifted to foreigners in the shape of enhanced prices as these will be undercut by cheaper supplies. In the circumstances, the greater part of the export duty will have to be borne by the cultivators and actually some portions of the exports are likely to be discontinued. Thus India exported 2,326,000 tons of rice worth 31.50 crores of rupees in 1923-30 but the quantity declined to 2,279,000 tons and the value to 25.97 crores in 1930-31, but it is also probable that this reduction of exports was caused by shrinkage of external demand as a result of the world depression. What we really need is regulation of cheap imports and we may leave the export aspect of the trade uninterfered with, for it is clear that exports of rice have undoubtedly declined and are partially due to a competitive disadvantage in foreign markets caused by the rise in the price due to export duties. This will allow home production to expand and to fill up the gap left by shortage of imports. In addition to this, the regulation of inter-provincial movements of the commodity may also be necessary if at the relative prices coming to prevail as a result of the prohibition of imports, increasing rice from other provinces tends to flow into the Bengal market.

It is a patent fact that Bengal produces paddy and rice in deficit of her requirements. On the average of the last quinquennium, Bengal produced 8.6 millions of tons of rice against a requirement of 11 million tons. It is therefore not enough to meet the demand of Bengal's requirements by increasing her production, for already the price of rice is extremely low and unremunerative. To prevent a further fall, we must inquire how the deficit is being made good at present and then seek to replace this compensating quantity by increasing *pro tanto* production in Bengal. As it is, the deficit is at present met by imports of cheap Rangoon rice. We must, therefore, shut out such imports by a regulated system of tariffs and then increase the home production to this extent. This will not merely prevent a fall in price but will, on the contrary, slightly raise it on account of the protective duty but the rise will not be equal to the amount of such duty. Most consumers of rice in Bengal are simultaneously producers as well so that the slight rise in price will not seriously affect anybody. Only the non-agriculturists will be affected to some extent but that is a comparatively unimportant matter.

It is a fallacy to think that this replacement of imports by additional home production which keeps the sum total of supply constant will not consequently be reflected as an increased price. But the price of Bengal rice has a tendency to rise and is always kept in check not merely by actual cheap imports but also by the possibility of such imports coming in at any time which cannot but have a bearish effect on the price. There are reasons to think that even the price of high-quality rice is thereby kept lower than what it should be, because if the high price is forcibly maintained, consumption at the margin will probably be diverted to cheap imported substitutes. If you shut out these cheap

imports there is just a chance that prices of different varieties of rice in Bengal will be kept at their proper levels.

In view of what has been said above regarding the correlation of prices of the different kinds of agricultural produce in Bengal, the problem of paddy and rice should be simultaneously tackled with the problem of jute. It is clear that any disturbance in the production of any one of the important crops is bound to have repercussions on the general agricultural economy and hence any scheme regarding paddy and rice must take note of, and, if necessary, be a sort of complement to a simultaneous scheme regarding jute. In the case of rice it is necessary that the increased home production that will be needed is concentrated on lands released by the restriction of jute acreage.

Regarding the problem of paddy and rice in Bengal, we need not bother ourselves with the export side of the problem. If we consider only Bengal, where the requirements are in excess of the probable supply of rice, we need only bridge over the gulf and need not care to build an export surplus, for, in order to make the surplus exportable, the price of home rice will have to fall sufficiently low to obtain a competitive advantage in the international markets. And, by our very hypothesis, we want to rescue rice from the present slough of depressed price. The idea of an increased production at home followed by a high level of home prices and dumping of surplus abroad at lower prices, must here be rejected as involving administrative difficulties and also as wholly unnecessary. We need to produce additional paddy only to the extent of the deficit caused by the shutting out of imports but beyond this we need not produce so as to lead ourselves to over-production to be got rid of only by ingenuous dumping. There is tremendous scope for other crops as well, especially sugarcane and cotton, the demand for which is yet unsatisfied, and the entire agricultural economy has to be planned in such a way that the supply of each kind of produce is carefully adjusted to the available demand.

Shutting out of imports of Rangoon rice will not necessarily affect the balance of trade with Burma in a way unfavourable to Bengal as Bengal's total imports from Burma are already in excess of her exports to Burma. It will on the contrary have the effect of making her balance of trade bearly balance by reducing the disparity in her favour. On the other hand, the cheap rice of Burma might find outlets to fresh foreign markets without seriously upsetting her own balance of trade with all the other countries as a whole. It may be pointed out that the existed small duty on foreign broken rice does not by itself have any effective restrictive force.

The question of fixation of a minimum price for paddy and rice needs discussion. In our argument on the problem of jute we have said that there should not be a minimum price for jute inasmuch as jute being a monopoly of Bengal its case was somewhat different. The fixation of a minimum price is really not necessary as there are alternative methods of obtaining a fairly remunerative price. Rice is, however, not a monopoly and there cannot at least be any objection to fixation, if such a course be not wholly recommended. But to make the minimum price effective, the Bengal market will have to be carefully insulated from other external influences, viz., prohibition of imports from other countries as well as other Indian provinces as a guaranteed minimum price is likely to encourage such imports. In

Bengal itself there will not probably be any net increase in the supply of rice as a result of guaranteed price, for, though the home supply will increase to some extent owing to the guaranteed price and also to the diversion of lands to paddy caused by restriction of jute acreage, this will be balanced by the corresponding diminution in imports. It may be pointed out in this connection that the Japanese Government have kept up the price of their rice at a certain remunerative level.

Regarding the marketing aspect of the problem, the margin of profit can be increased by the organised joint sale of the produce which will eliminate margin now being appropriated by middlemen. The existing system of marketing can only be improved if cultivators of paddy organise themselves into co-operative societies for joint disposal of their produce. The success of such societies mainly depends on the universal acceptance of their membership by all the paddy producers of the locality, and also on the absence of competition amongst societies of different places. For this purpose, they should be federated into a central or provincial society which can thereby facilitate the direct supply of paddy to the mills or actual consumers, to the exclusion of the middlemen. Experiments made in Sir Daniel Hamilton's Estate at Gosaba in the 24-Parganas point to the success of the idea. The wording of the Gosaba paddy sale societies may be adopted with necessary modification to suit local requirements. These societies may get finance from the rice mills to some extent, cash credits on stock may also be received from the Imperial Bank.

Appendix.

7. (a) Price of rice is generally equal to price of paddy plus cost of labour minus price of "tus" or husk plus a reasonable margin of profit.

(b) As a matter of experience price of rice remains almost double the price of paddy.

(c) It is experienced that prices of rice and paddy vary with the price of jute.

Minimum price.

15. (a) 15 to 16 maunds of paddy per acre, i.e., about 4 to 5 maunds per bigha.

(b) Rs. 2 to Rs. 2-8 per maund of paddy.

(c) The calculation is as follows:—

				Rs. a. p.
(1)	8 langals, i.e., ploughing cost	..		4 0 0
(2)	Mowing	.. ..		0 8 0
(3)	Seed	.. ..		1 0 0
(4)	Harrowing	.. ..		0 8 0
(5)	Weeding	.. ..		2 0 0
(6)	Reaping	.. ..		1 8 0
(7)	Marai threshing	.. ..		1 0 0
Total				10 8 0 for 4/5 maunds of paddy per bigha.

If all the above items are to be paid for there is hardly any margin of profit. But free labour is obtained at some of the stages.

16. I consider 50 per cent. a fair profit for the cultivator.

An economic price is a price which after allowing for all the above costs of production including cost of human labour leaves a margin of 50 per cent. on net costs as profit.

18. A better outturn may be obtained by scientific farming using improved manures, by better irrigational facilities and by consolidation of fragmentary holdings. Intensive cultivation is possible though the conservation and lack of imagination of the Bengal tenantry are the principal obstacles in the way.

19. (a) As pointed out in the foregoing memorandum, fixation of minimum price is not objectionable. If approved, it is advisable to fix price of paddy at Rs. 2-8 per maund and that of rice at Rs. 3-8 as the minimum. The proposed import duties should be so devised as to ensure this level of price. See discussion of this point in the memorandum.

24. The difference is accounted for by transport charges plus arat charges plus profit plus middlemen's charges.

25. This difference can be reduced by exclusion of the middlemen by organising co-operative societies of the cultivators of paddy, the other items being more or less constant.

26. A custom of 50 per cent. excess payment over borrowed paddy is prevalent in many places. This is called the "Dera" custom which is a very common form of investment in paddy area.

27. Cultivators' interests are greatly affected by the prevalence of different standards of weights and measures in different "mokams" and "ganjas"!

28. The producer sells his paddy to the "faria" or "bepari" at his own house or he sometimes brings to hât for sale in arats.

29. "Britti" and customary allowances are paid by producers. This affects the total quantum of sale proceeds but not the level of price.

30. (a) Uniform weights and measures should be enforced in all markets at 80 tolas a seer and 40 seers a maund.

(b) If legally enforced, the difficulties are not insuperable.

31. (a) Grading is according to names and varieties of paddy and rice.

(b) Standardisation of grades should be enforced.

(c) Department of Agriculture should determine the standard grades.

32. (a) (b) They always move together, allowing for the cost of transport which is almost constant and allowing for competition in mufassal markets as influenced by movements of prices in Calcutta markets.

(c) The producing cultivator being isolated in his corner of the world has no means of knowing the movements of the Calcutta market.

(d) An organisation of producers, if formed, may help the cultivator in this respect.

35. (a) Difficulties of communication in the mufassal hamper marketing to some extent.

(b) Railway freight from and to places where there are no alternative means of transport is excessive, though this is economically justifiable by the principle of "charging what the traffic will bear". Thus the freight charges from Calcutta to Kushtia are exactly the same as those from Calcutta to Bhatiapara which is about 70 miles further off from Kushtia.

Replies submitted to questionnaire on Paddy and Rice by Khan Bahadur Maulvi A. M. Arshad Ali, Registrar of Co-operative Societies, Bengal.

15. (a) The average yield of paddy in Bengal is about 18 maunds per acre.

(b) About annas 13 per maund.

(c) The cultivating and harvesting cost of a bigha of land is about Rs. 5, if it is entirely cultivated by hired labour and hired ploughs:—

					Rs. a. p.
Five hired ploughs for tilling one bigha	..	..			1 4 0
Cost of seeds, preparation of seed-beds and taking out of seedlings	..	..	..	..	0 8 0
Transplantation	..	..	..	..	0 12 0
Weeding	..	..	..	..	0 8 0
Harvesting, threshing and stocking	..	..	..	..	2 0 0
Total	..	..	..	..	<hr/>5 0 0 <hr/>

16. The price of six maunds of paddy is about Rs. 9 at the common rate of Rs. 1-8 per maund. Less Rs. 5 (cost of cultivation and harvesting). Profit Rs. 4; out of which rent has to be paid. The profit should be more if the hired labour is not engaged. The production depends on good rain and favourable weather conditions. If a cultivator cultivates say 20 bighas of land with his own ploughs and labour, his cost should not exceed more than Rs. 2 per bigha and in that case his profit would be Rs. $7 \times 20 =$ Rs. 140; out of this income he will have to pay rent about Rs. 50. The balance Rs. 90 is inadequate for him to maintain his family of 5 heads. Therefore he requires some kind of subsidiary occupation to make his two ends meet. Besides, there is crop failure once in every five years which increases his difficulty in maintaining an economic balance.

17. By getting average yield increased by the improvement of land, seed and by way of better cultivation.

18. Yes.

19. Yes.

20. The minimum price should not be less than Rs. 2 per maund.

24. To calculate, say, annas 8 per maund of paddy.

25. Yes.

26. About one-fourth of their crop.

26. (b) Yes. The weight should be standard and all measurements by baskets should be stopped and standard weights should be used everywhere.

28. (a) Through middlemen, mostly local mahajans.

(b) No.

(c) The mahajans taking advantage of the straitened circumstances of the poor and the ignorant people take their crops at a very low rate.

29. Yes.

30. (a) Yes, 80 tolas=1 seer should be the standard weight; measure by baskets should be abolished.

(b) It can be easily done by orders from the executive heads of districts or by municipalities and union boards.

31. (a) There is no such system at present.

(b) It is not possible in Bengal at present as there may arise various complications out of this.

32. (a) Yes.

(b) Beparies or middlemen get a good profit from the difference of prices paid by them to the cultivators in mufassal and what they get in Calcutta and other wholesale paddy markets.

(c) No.

(d) It can be taken up by union boards by hanging up notices with rates twice a week. These rates can be obtained by the board from different paddy and rice firms.

33. (a) Yes, only in areas where there are no Co-operative Sale Societies.

(b) Whole of Bengal.

(c) A Committee consisting of non-official men with experience in paddy and rice business and responsible Government officials may be formed for the purpose.

(d) As above (c).

(e) The question of finance lies with the Government.

(f) Yes, prohibition is not possible.

34. (a) Yes.

(b) Such societies should be organised in important centres of the paddy grown districts of Bengal under the supervision and control of the local Central Co-operative Banks. Short-term loans to be advanced to the cultivators for producing the crop, at the cultivation time. The crop for which the loan is advanced should be pledged to the financiers. The sale societies will have to collect the crop so pledged at the harvesting time and keep it in their godowns and arrange its sale at the best market rates available during the year. Yes, the cultivators are expected to get better prices than what they now get from the middlemen. Central Co-operative Sale Societies for the disposal of paddy and rice should be established in 2 or 3 different important marketing centres and at Calcutta there should be a Provincial Co-operative Sale Society. (A society of this type exists at present.) They will be only responsible for the sale at the best prices, of paddy and rice supplied to them by the mufassal co-operative sale societies for disposal. All the mufassal sale societies will be affiliated

to the Provincial Sale Society at Calcutta. Legislation does not seem to be necessary for the purpose.

(c) (i) The type of these societies should be on share basis with limited liabilities.

(ii) Yes, the Central Co-operative Banks often find difficulty to finance these societies for want of funds.

Government may finance those societies which cannot be financed by the Central Banks. The rate of interest on the loans to the members of those societies should not be more than 6½ per cent.

(d) Regulated markets are not necessary in areas where co-operative sale societies are organised.

Summary.

Co-operative Sale Societies should be organised in important centres of the paddy-growing districts of Bengal. These societies should either be financed by the local Central Co-operative Banks at a rate of interest not more than 5 per cent. The societies will advance crop loans to their members but interest on the loans should not be more than 6½ per cent. on the stipulation of crop (paddy) for which the loan will be advanced. The crop after harvesting should be made over to their respective sale societies for disposal. These sale societies will dispose of the paddies so collected at the nearest paddy selling centres or send them to the Central Sale Societies to be organised in 2 or 3 different important paddy selling centres or to the Provincial Sale Society at Calcutta according to the suitability of prices. The cultivator members will get the balance price of the paddy supplied to their respective societies after the final disposal of the same minus the loan advanced for producing the crop, interest on the same, any advance against the supply of paddy and other incidental charges for the disposal of paddy. The above arrangement is possible in the areas where there are no rural co-operative societies, but where there are rural co-operative societies the Central Co-operative Banks may advance short-term crop loans to those co-operative societies under them for distribution to their members who will pay in kind (paddy) their dues (to their societies) to the co-operative sale societies on behalf of the Central Co-operative Banks concerned. They may also send any surplus paddy to the sale societies concerned against certain advances. The sale societies will be responsible for the disposal and final payments to the Central Co-operative Banks and the members of village societies as outlined above the cultivators will get the following advantages:—

- (1) Cheap credit.
- (2) Hold up their crop till the best market during the year is available as they will not have to undersale their crop immediately after harvesting to repay mahajans, pay rents and meet other liabilities.
- (3) The cultivators will not be required to pledge their standing crop.
- (4) They will be saved from short weights and measurements.
- (5) They can finally get much better price than what they can expect to get from the middlemen.

35. (a) Yes.

(b) Yes, by railways, steamers and roads it is possible. It varies according to distance. The freight per maund of paddy from Dinajpur to Calcutta by rail is about annas 5 and the average price of paddy which is imported to Calcutta in large quantities is about Rs. 2-8 per maund. (Finer variety.) The boat hire from Sunderbans to Calcutta is about Rs. 2. Arrangements require to be made by the Government with the railway and steamer companies or any association to lower the existing freight.

Replies submitted by Mr. S. C. Mitter, Director of Industries, Bengal, to questionnaire on Paddy and Rice.

1. (a) No.

(b) In Bengal the existing method of estimating the area under paddy appears to me to be defective, for unlike in other provinces here, under the system of permanent settlement there are no rural revenue collecting agencies to give reliable estimates of annual acreage under rice. The estimate of acreage as far as I know, is arrived at from the reports furnished by the union boards and checked by the District Officers. The reports of the union boards are based on casual enquiries or guess work and are as such not very reliable.

Then with regard to the annual outturn, the system of anna estimate on the basis of which the "Standard Yield" is estimated does not work at all satisfactorily. The standard yield is a sort of average arrived at more or less theoretically by the village people. They make a guess that so many annas (10 or 12 annas whatever it may be) of the crop have been grown. This is a defective procedure psychological bias for (i) maintaining the previous year's record if the crop is fairly well, or for (ii) under-estimating the crop, if it is very good or for (iii) exaggerating the shrinkage in the crop production, if the crop is positively bad.

Necessarily, the annual outturn for a district or the province arrived at by multiplying the standard yield by the acreage as estimated is highly unreliable.

(c) Yes.

(i) Yes.

(ii) Yes. The more dependable procedure would be to introduce the system of circulating printed forms in Bengali to the villagers through the union boards which will be duly filled and returned by a specified period. In this form a detailed return will be furnished, showing the area of each plot and the estimated number of maunds per unit area. The estimated yields would be thus obtained by multiplication and addition.

(d) The method of random sampling is certainly a much less reliable procedure than what is suggested in reply to (c). The reliability of estimates obtained by such a method will depend on the number of samples examined, for larger is the number and greater is the variety of such samples, the more dependable will be the results. As such we are not likely to secure the most accurate results unless we take the whole of Bengal as constituting the sample area. The method of random sampling may, therefore, give only a general idea about an economic fact which, however, cannot be regarded as quite accurate.

2. (a) Yes, the statistics of imports and exports of rice and paddy as between the districts, may be obtained from the railway stations and steamer stations within the area of a district. The railway and steamer authorities may be requested to advise their station masters or some central offices where all statistics are maintained to supply the necessary informations.

As regards boat and cart traffic, it would, however, be difficult, if not almost impossible, to get any reliable data relating to the movement of goods by boats and carts. But even excluding such traffic, the compilation of rail and river-borne trade statistics will be sufficiently useful and worth the trouble.

In this connection a reference may be made to the work of the Industrial Intelligence Section which has recently been created as a part of the Department of Industries, Bengal. One of its proposed functions is to compile the inter-district trade statistics relating to a large number of commodities including rice and other agricultural products. A simple standardised form has been prepared the copies of which will be periodically supplied to the Audit Offices of the Railways and the Central Offices or Steamer Companies for being filled in and returned. To this effect we are engaged in negotiating with the transport companies and hope to come to an understanding with them ere long.

(b) Such statistics when compiled will give the idea of the relative demands of the various districts for the commodity and also the extent of supply from each of them. These informations may be correlated to the total production in the districts and thus conclusions may be reached as to the relative requirements of the districts individually. Thus it will be possible to ascertain whether the food supplies of the province as a whole as also of the individual districts are keeping pace with their growing requirements due to population growth.

3. (a) Yes.

(i) But the statistics of outturn and area under paddy as are now available are not accurate in view of the difficulties and drawbacks enumerated under 1(b).

(ii) The answer is covered by reply to 2(a).

(b) It is covered by reply to 1(e).

(i) Does not arise.

(ii) Does not arise.

4. (1) They are reasonably accurate, although the movement of traffic by boats and carts is not included therein.

(2) Unless some machineries are set up for registering cart and boat traffic across the frontiers of the province, the available data relating to the inter-provincial movements of paddy and rice cannot be made fully accurate. A form of octroi duty on certain specified goods moving out and into the province may be levied and this may help the compilation of full statistics and also bring some revenue to the province. The cost of collection may not thus be heavy and prove burdensome on the provincial exchequer.

5. (a) Yes.

(b) The stocks of paddy and rice in any particular year may be arrived at by this way.

Estimated total production.

Deduct—Exports out of the district and estimated total consumption.

Add—Imports from other districts within Bengal minus imports from other provinces or countries.

Such an estimate of stocks can be arrived at if only the inter-district trade statistics are collected in the manner as referred to in reply to 2(a).

(c) Yes, if the transport services do not evince a willingness to offer facilities for the compilation of the inter-district data which are maintained at the Central Offices, it may be necessary to pass a legislation requiring them to supply what informations the Government may require in the interest of the economic development of the province.

6. (a) Yes.

(b) By imports mainly from Burma.

(c) Yes. Efforts may be made to increase the yield of rice and paddy per acre and extend the area under paddy.

Note by Director of Agriculture, Bengal.

Rice (*Oryza Sativa* L.) belongs to the natural order of the gramineae, to which also belong the other important cereals, wheat, barley, oats, maize and millets. It is indigenous to the south-eastern portion of Asia, though it is doubtful if India or China is its original home.

The genus *Oryza* includes some eighteen or twenty species reviewed recently. The section *Sativa* is the most widely spread, including twelve species. Of these species *Oryza Sativa* var.—*spontanea*, approximate very closely to the cultivated varieties, and has an area of distribution in India and Indo-China which coincides with the areas of most ancient cultivation. This species may be regarded as the progenitor of the majority of cultivated races. Other species, however, played a part. Thus, certain of the small grained rices may have arisen from *Oryza minuta*.

Although *Oryza Sativa* L. var.—*spontanea*, has its centre of diversity in India and Indo-China, yet the recent theory is that the centre of origin of the section *Sativa* as a whole must be regarded as Africa, where seven of the twelve—species occur. It is, therefore, possible that the primæval home of rice may be tropical Africa, but if that be the case, then its introduction into Asia must have taken place at a very early date.

In the East, rice is known to have been in cultivation for several thousand years; its pre-historical period of cultivation or semi-cultivation may, therefore, run into many thousands of years. During the whole of this period it has been intensively grown by peasant farmers of different places and civilizations under conditions favourable to the development of local races. Further, rice is mainly self-fertilized. As a consequence it is now a vast complex of forms, whose

extent it is scarcely possible to gauge. According to Copeland in Java, Indo-China and Japan, the number of varieties is estimated at approximately 1,000 each. In the Philippines, some 2,000 varied names are on record, and up to 1919 nearly 1,000 of these had been proved to be distinct. In Ceylon, the estimate is only 200. Even an approximate estimate for China is not available. In India 8,000 varietal names are said to have been recorded, and for Bengal alone Dr. Watt as Reporter of Economic Products, had occasion to examine four thousand varieties of Bengal rice at one time.

How many of these are distinct is as yet impossible to say. Hector et al (1934) has described 856 types of transplanted Aman and 931 types of Highland Aus, classifiable into 540 varieties for Eastern and Northern Bengal alone.

Rice is the most important cereal crop in India, and occupies an area of approximately 75,103,000 acres, yielding 27,934,000 tons. Of this total the largest area is Bengal, 21,376,000 acres yielding, to 8,895,000 tons.

Outside Burma, where the bulk of the crop is exported, this large area is grown mainly for local consumption as rice is the staple food crop.

The number of varieties cultivated is very large, and all the cultivated rices belong to well-marked agricultural groups, of which there are five in Bengal. Similar agricultural groups exist in other provinces, varying according to local conditions. The importance of the large number of varieties and their belonging to different physiological and agricultural groups is that they provide an unlimited material for improving the breed with desired qualities suitable for growing under varied conditions of soil situation and climate throughout the year.

The following are the five agricultural groups of paddy in Bengal:—

- (1) Highland Aus, or early rice, sown broadcast on highland ordinarily in April and May, and harvested from July to September. This crop does not ordinarily grow in standing water, though rainfall is heavy during its growing period and the soil may become saturated.
- (2) Transplanted Aman or winter rice, sown in a seed-bed in June-July, transplanted into standing water in July-August and harvested in October-January. This is the main crop covering even 15,000,000 acres in Bengal, and contains most of the finest and best varieties.
- (3) Lowland Aus rice sown broadcast on low bhil lands in February-March with the first showers of rain, while the land is still dry. Later the area becomes inundated, and the crop is harvested in July-September in standing water up to depth of 5 or 6 feet.
- (4) Lowland Aman rice, sown as the lowland Aus on still lower areas, but continues growing throughout the season, and is harvested in November-July. In the height of the monsoon, some varieties of this crop may be growing in 30 feet of water.
- (5) Boro or spring rice sown in a seed-bed about October and transplanted about January on muddy river banks from which the flood waters have subsided, and on the lowest lands of all which do not dry up in the winter months, harvested in

March-April. This crop is generally grown where irrigation facilities are available, as there is no rain at this time of the year.

The many varieties belonging to these various crops will grow only under their own peculiar conditions, or if grown under other conditions, will produce at least a very poor crop. It is probable, however, that they could be slowly acclimatized to conditions other than their normal, as all are most certainly of the same origin, and have in the course of time become specially adapted to their particular environments. These various crops are, in fact, excellent examples of physiological adaptation. So far as outward morphology goes, many varieties of one class are almost indistinguishable from those of other classes, and a mere botanical classification would place them in the same group, but physiologically they are totally distinct.

The number of varieties belonging to each of these agricultural groups is very large, and it is well-known that the varieties of rice are probably more numerous than those of any other crop. These varieties within the main agricultural groups again show minor adaptation to environment, the chief limiting factors being water and physical condition of the soil.

For a definition of a botanical variety within the above Agricultural groups, a consideration of the following character are generally found to be sufficient, viz., (1) The presence and distribution, if present, or absence of coloured pigment in the growing plant. (2) Presence and degree of awning, or absence of awns. (3) The colour of ripe husk. (4) The size and shape of the ripe grain, as defined by the length and breadth and the contour of the grain. (5) The colour of the husked grain. (6) The consistency of the husked grain.

Further distinction within varieties as above defined are found mainly on minor differences in the morphology of the inflorescence (flower-head), in the length and strength of straw, and on physiological characters, of which the most important is the duration of the growing period as defined by the length of the time between sowing and flowering and ripening. As regards this, interesting differences are found between Highland Aus varieties and transplanted Aman varieties. In the latter, flowering and ripening, in pureline cultures, occur on almost a fixed date, which varies little from year to year, and are almost independent of the dates of sowing and transplanting. In the Highland Aus varieties, on the other hand, which are normally sown in April-May and harvested in July to early September, the dates of flowering and ripening depend on the date of sowing, and is sown one month later, will flower and ripen approximately a month later. In this group, therefore, the actual number of days from sowing to flowering and ripening must be the criterion, and not the actual date. This interesting difference is probably an adaptation of the climatic conditions of the time of the year the varieties are growing.

The transplanted Aman are due to flower when there is a rapid drop in temperature and when the soil is drying up and physiological processes are brought to a standstill. Hence they must, for their own preservation, flower and ripen off. The highland rices, on the other hand, flower and ripen during the months of July-September, when conditions for growing remain fairly constant.

In India, as opposed to Burma, the main consideration is increased yield as the crop is grown mainly for consumption. In Bengal, the export is almost confined to so-called Bengal rice, which includes the well-known "Patnai" rice of commerce. The export of these rices from Calcutta amounted some years ago to over 300,000 tons, but has declined to about 150,000 tons.

The chief competitors of Patnai rice are Carolina rice from America and the so-called American-Java. Although Carolina rice is supposed to have originated in Madagascar, yet the ultimate origin of this paddy could be traced in Bengal, from where a cargo ship was carrying paddy to America. The ship was wrecked in the Indian Ocean but a consignment of a bag full of the paddy was saved from the wreck and carried to Madagascar. Carolina rice had its origin from this bag of paddy.

The problem for production of improved varieties differs for export and for consumption. For export, the problem is comparatively simple. In brief, it is the selection of strains of improved types suitable for the mills. The mills pay a premium for pure samples of the required shape and size, with a white and tough grain. The problem then is to produce such strains by selection or even by hybridization and multiply them for distribution. If such improved strains also give a higher yield, so much the better, but yield is not the main consideration.

In Bengal the improvement of the export rices, however, is a comparatively minor problem, considered with that of the production of high yielding strains for the cultivator to grow for his own consumption. Conditions vary much, and varieties suitable for one part of the province of Bengal are not suitable for other parts. For example, the strains which have proved most successful in East Bengal are of little use in the higher and drier tracts of West Bengal, and varieties of another province, if brought to Bengal, will hardly set seed. Still, it is possible to find varieties capable of very wide distribution within a particular tract, and the problem is to a large extent the elimination of many worthless varieties whose number is legion, and the improvement by simple selection and subsequently by hybridization, of the best varieties suitable for distribution over the widest possible areas.

Such work is in progress in Bengal at four different stations representing different conditions of soil and moisture, viz., Dacca, Barisal, Chinsurah and Bankura. Work is also being carried, with the aid of a grant from the Imperial Council of Agricultural Research, on the improvement of the export rices, of which the well-known "Patnai" is the chief. As a result of the work of the Botanical Section of the Department at the above stations, Indrasail was first recommended as a very high yielding Aman paddy strain obtained from the results of selection of work. Similarly Kataktara was the first Aus paddy strain to be recommended in 1917-18. Later by the year 1921-22 Dudsar and Tilakkachari were added to the list of the former and Surjamukhi and Pukhi to the list of the latter, as a result of further selection work. In this way at the present moment the Department has in the recommended list of improved paddy strains both as regards yield and quality, as many as (23) strains of transplanted Aman paddy and Aus paddy, of these mention may be made of the following, viz., Bhashamanik, Jhingasail, Latisail, Nagra and Patnai Gosaba (23) which are making headway in the different parts of the Province as the best improved and high yielding paddy of the respective tracts.

The area occupied by the improved strains in Bengal may be estimated 1,471,000 acres (1937) a very conservative estimate.

In the main Bengal grows rice definitely as a food crop and it is not considered in the light of a cash crop except in certain parts of Western Bengal and one or two other small tracts. The fact that rice has had to be grown in so many varying conditions, has led to the very large number of types, but, for marketing purposes, these are fairly well defined and it may be generally stated that the cultivator himself prefers rather a coarser rice than the bhadralog. To a certain extent in Western Bengal and other areas, it does form a cash crop since they can grow nothing else to take its place. Apart from these, certain areas are now growing export rice which is totally different from that required inside the province in that it is more glutinous and so is useful for the European market. To a certain extent, Bengal also exports to other provinces in India; but, whatever may be exported, it must not be forgotten that, in Bengal, rice is a staple food crop and is grown chiefly for this purpose. With increasing pressure of population on the land, the main item of importance with regard to it is improvement of yield.

M. CARBERY,

Director of Agriculture, Bengal.

The 5th June 1939.

Replies submitted by the Senior Marketing Officer, Bengal, to the Paddy and Rice questionnaire issued by the Bengal Paddy and Rice Enquiry Committee, 1938.

Statistics of supply, demand and stocks.

1. (a) No.

(b) The available statistics regarding the area under the crops are not correct. The increase or decrease in area from year to year is reported to the Director of Agriculture by the Collectors, who in turn get their returns from the Circle Officers, who have not got any staff or enough time to carry out proper investigations. Plots for crop-cutting experiments are selected at convenient sites, without due regard being paid to the proper selection of crops representing high and low land, or early and late crops, the yields of which differ to a great extent. The number of crop-cutting experiments carried out during a year does not also seem adequate to arrive at a reasonably accurate result.

(c) In my opinion these defects cannot be remedied without some changes in the existing administrative machinery and some increase in costs.

(d) In the first place a proper survey should be carried out to find out the actual area under paddy as is being done now in the case of jute.

A separate staff should be entertained under the Department of Agriculture for reporting the increase or decrease of area under

different crops from year to year and to carry out crop-cutting experiments. An officer of the status of a District Agricultural Officer should be responsible for this work and he should have at least one trained surveyor in each thana in his district. Besides carrying out these duties, the demonstrators can also help the District Agricultural Officer in the propaganda side of his activities. A Special Officer in the Marketing Section should be in charge of this work.

(e) It is a scientific method which satisfies the requirements and may be tried.

2. (a) This is not possible under the present conditions. Statistics regarding movements by rail and steamers, may be available from the railways and steamer companies by paying the cost of compilation for which they have to engage additional staff; but besides rail and river traffic by steamers, there is a considerable movement of paddy and rice by carts, boats and even lorries now-a-days from one district to another of which no statistics are recorded anywhere and these statistics cannot be compiled at a reasonable cost.

(b) These statistics will be of great help during flood, drought, famine, etc., in knowing the position of particular districts as regards supply and demand. These will readily indicate where supplies are available in surplus of local requirements, so that arrangements may be made quickly to move supplies to deficit areas. These statistics will also be of much help to the merchants.

3. (a), (1) and (2) Yes.

(b) The outturn of and area under paddy should be ascertained by the Special Officer, with his special staff of demonstrators suggested under 1 (d).

The demand for paddy and rice is to be ascertained from rice mill owners, and merchants, who should be required by law to submit monthly returns to the Special Officer of the Marketing Section.

3. (b) (ii) The cost of maintaining such an organisation will be as follows:—

	Per month.	Per annum.
	Rs.	Rs.
27 District Marketing Officers at Rs. 125 each per month	3,375	40,500
604 Thana Surveyors at Rs. 30 per month each	18,120	2,17,440
Travelling allowances for District Marketing Officers at Rs. 600 per annum each (600 × 27) .. ..	..	16,200
Travelling allowances for Thana Surveyors at Rs. 240 per annum (240 × 604) .. ..	..	1,44,950
Total ..	..	4,19,100

4. (a) The existing statistics of imports and exports of paddy and rice into and from this province, from and to other provinces, as published by the Director-General of Commercial Intelligence and Statistics

in the "Statement relating to the inland Trade of India", are reasonably accurate so far as rail and steamer borne traffic is concerned; but no statistics are available regarding the traffic by carts, lorries and boats. There is quite a large traffic by boat between Bengal and Assam.

(2) Under the present conditions it is not feasible to obtain accurate statistics regarding movements by road or boat. In order to obtain fairly accurate statistics, a large organisation will be necessary to collect statistics at all the important markets where inter-provincial trade is carried on and to make it obligatory for the owners of boats, lorries and carts to have them registered and to supply monthly returns showing the quantities of paddy and rice carried by them with sources and destinations. In my opinions the cost of compilation of such statistics would be justified.

5. (a), (b) and (c) Under existing conditions it is not possible to obtain any statistics of stocks of paddy and rice in hand in any particular year. Legislation will be necessary for this purpose, by which it should be made obligatory on the part of millers, merchants and stockists to submit monthly or periodical returns showing the stocks of paddy and rice in hand.

6. (a), (b) and (c) From available statistics, Bengal is said to be producing rice in deficit of her requirements every year. In particular years the deficit is marked due to poor crop on account of drought or flood; but in spite of a poor crop, there are every year exports of rice of better qualities from Bengal to most of the other provinces as well as to other countries all over the world and to offset these, there are imports of cheaper rices, mainly from Burma. From the statistics available regarding production, imports and exports, Bengal's deficit worked out at about 21 million tons in 1934-35 but my impression is that this figure cannot possibly be correct, as there are no reliable statistics available regarding imports by road and boat, which are considerable. This also leads me to think, as I have already mentioned under 1 (d) that the area under, and the production of rice as given in the official forecasts are not correct. I think, it is desirable to take necessary steps to increase the production to some extent by pushing the cultivation of better yielding departmental varieties and by judicious manuring and elimination of some of the poorer qualities. Steps should also be taken to increase the cultivation of the varieties specially in demand for export. This work has been done by the German Government through decreases in the case of wheat.

7. (a), (b) and (c) Yes, generally the price of rice depends to a great extent on the price of paddy. Roughly $1\frac{1}{2}$ maunds of paddy will yield 1 maund of rice; hence the price of 1 maund of rice will naturally be equivalent to the price of $1\frac{1}{2}$ maunds of paddy plus the milling and other incidental costs. But the extent of this difference in price does not exist all the time in the course of a year. Stockists and mills generally hold stocks of rice till the rains in the hope of getting better prices and generally prices rise during and after the rains when the difference in the prices of rice and paddy may be more in favour of rice. The production, local demand, imports and the demand for exports are the important factors affecting the prices of these commodities. The monthly prices of 5 varieties of paddy and rice at Chetla, Calcutta, for the years 1931 to March 1938 are given in Appendix I to illustrate the difference in prices of paddy and rice of the same qualities at different periods of the year.

8. There is no definite correlation between the prices of paddy and those of other agricultural staples. The price of each commodity is principally governed by the supply and demand for it. So, an increase or decrease in the price of paddy will not necessarily bring about similar increase or decrease in the prices of other staples, such as, wheat, *po-seeds*, etc. Only in the event of a general economic depression the prices of all commodities are likely to be similarly affected.

If we compare the prices of rice at Chetla (Appendix I) and those of Punjab wheat (Appendix II) for the years 1931 to 1935, we shall find that the prices of rice gradually went down from 1931 to 1933 and then went on increasing from 1934, whereas in the case of wheat the prices went on increasing from 1931 to 1933, went down in 1934 and again went up in 1935.

9. (a) Not exactly.

(b) The prices of 5 varieties of paddy and rice at Chetla, Calcutta, for the years 1931 to March 1938, are given in Appendix I. From this it will be seen that since 1934 prices went up till about the middle of 1936 but subsequently there has been gradual decrease.

(c) From the statement of prices given we find that there has been a definite fall since the latter part of 1936 and this continued throughout 1937. This fall may be ascribed to greater imports from Burma in 1936-37 (*see* Appendix III for imports of paddy and rice from Burma) and increased local production (*see* Appendix IV for area under and production of rice in Bengal).

10. As already stated above, there has not been steady fall since 1934. The fall in prices is particularly noticeable since the latter part of 1936. The adverse factors responsible for this fall are (1) increased local production which is a temporary factor and (2) imports from Burma, which are more or less permanent (*see* Appendices III and IV). Failure of the rice crop in Burma is rare and the production of rice per acre is more than in Bengal. She has practically every year quite a large exportable surplus; hence it is possible for her to export rices to India and other countries at a cheaper rate. The Burma rices are mainly consumed by the poor people, to whom a saving of even a few annas per maund is of great consequence. Not all the Burma rice imported into Bengal is consumed within the province; but some of it is re-exported to the neighbouring provinces of Assam, Bihar and Orissa. The local production is also not constant but varies according to climatic conditions prevailing in different years. When there is a bumper crop, prices naturally fall due to greater available supplies.

11. (a) The local production, under the existing conditions, is not amenable to any control, as drought and flood are not preventable. Imports from Burma are amenable to control by the Government of India by the imposition of an import duty, which will render it difficult for Burma rices to be sold at the prices they are available now and this will result in some increase in the prices of Bengal rice too. By this measure the producers may benefit to a small extent; but the landless labourers and other poor people, who have to purchase their food grains, will have to pay more for their chief item of diet.

(b) As stated above, increased local production and greater imports from Burma are the main factors responsible for the depressed prices

since the middle of 1936. Another important factor, which is also responsible for this, is the competition, in the foreign markets, of Burma, Siam and the United States of America, which are now growing rices similar in quality of Patnai of Bengal, which is the chief export-rice, Sugandhi of Burma, Garden rice of Siam, Superfine grades and Mexican Editee grades of the United States of America are similar in quality to Patnai rice of Bengal and the purchasers in European countries are now able to get these qualities at a cheaper rate. Hence the price of Patnai rice, which is exported to foreign countries, also fell in spite of there having been considerable increase in exports during 1936-37 and 1937-38 as compared with those of 1934-35 and 1935-36 (*see* Appendix V for foreign exports of rice from Bengal for the years 1926-27 to 1937-38), and Appendix VI for estimated exportable surplus of Burma, Siam and Indo-China during 1939 and actual exports from these countries during the last 6 years.

12. (a), (b) and (c) There has not been any disproportionate increase in supply as the production during the last 10 years remained steady between 8 and 9 million tons, the only exception being in the year 1936-37 when the production was 10½ million tons (*see* Appendix IV). Foreign supply, by way of imports, has also not increased disproportionately during the last few years (*see* Appendix III). Imports of rice are chiefly from Burma. All the points in question under this head have been fully dealt with in replies to questions 9, 10 and 11 above.

13. There has not been any shrinkage in the local demand. The foreign demand from Bengal has come down to some extent since 1933-34; but there has been some increase again in 1936-37 and 1937-38 (*see* Appendix V). The cause of the fall is mainly due to competition of Burma, Siam, etc., in the foreign markets as already stated under 11 (b). This fall may now be ascribed to factors of more or less permanent character, as Burma, Siam, etc., are now growing rices of similar quality to Patnai of Bengal and are able to offer them at cheaper rate.

14. (a) The present export duty on rice, which is 2 as. per maund is in force since 1st March 1930, previous to which it was 3 annas per maund. But, in spite of this, the exports were greater during 1926-28 to 1932-33 than during the last few years. So it cannot be said that the export duty has affected the foreign demand. But now, if the export duty be altogether taken off or at least reduced, it may help Bengal to some extent to compete favourably with other exporting countries.

(b) I do not think, the export duty has affected the prices for paddy paid to the cultivators, because the foreign export form a very small part of the total production and the local demand as well as the demand from other provinces.

(c) I do not think, the export duty has anything to do with the fall in price or in foreign demand.

Minimum price and improvement of price.

15. (a) It is difficult to give any figures representating the average yield of paddy per acre in different districts of Bengal. But the following estimated yields of winter rice, which is the main crop, based on results of crop-cutting experiments and in terms of percentage of

the normal yields of 100 which is equivalent to 13½ maunds of clean rice, district by district, for the years 1935-36, 1936-37, and 1937-38 will give some idea about the yield in different districts of Bengal:—

District.		1935-36.	1936-37.	1937-38.
24-Parganas	..	33	133	100
Nadia	..	33	83	100
Murshidabad	..	58	125	111
Jessore	..	55	64	83
Khulna	..	67	100	83
Burdwan	..	33	100	92
Birbhum	..	50	133	92
Bankura	..	33	125	100
Midnapore	..	54	133	133
Hooghly	..	33	100	83
Howrah	..	50	100	92
Rajshahi	..	67	83	75
Dinaipur	..	83	100	75
Jaipalguri	..	100	133	79
Darjeeling	..	92	92	92
Rangpur	..	100	95	100
Bogra	..	45	100	100
Pabna	..	75	92	92
Malda	..	67	100	75
Dacca	..	80	98	92
Mymensingh	..	60	100	100
Faridpur	..	92	87	88
Bakarganj	..	90	110	85
Chittagong	..	80	100	70
Tippura	..	75	100	92
Noakhali	..	60	95	95
Chittagong Hill Tracts	..	83	100	92

(b) About Re. 1 per maund of paddy.

(c) The calculation is made on the basis of an average production of 20 maunds of paddy per acre and the cost of production including rent of the land at Rs. 20 per acre.

16. A net income of say Rs. 16 to Rs. 20 per acre should be considered to be a fair profit to the cultivator. By economic price for this crop I mean that the producer should be able to sell it at about Rs. 2 per maund which will bring him an income of about Rs. 15 to Rs. 20 per acre.

17. The margin of cultivators' profit can be increased by limitation of some middlemen and making arrangements for warehouses where they may deposit their produce for the time being to be sold later when prices go up. Along with this there should be some arrangement to advance some money to the cultivators against their stocks in order to enable them to meet their immediate needs. Steps should also be taken to increase the cultivation of improved varieties of paddy and of the special qualities in demand for export.

18. Yes.

19. It is a very difficult problem to tackle successfully. I do not think it is feasible to fix prices for paddy and rice, as there are innumerable varieties of different qualities grown in the province and it will be very difficult to fix any basis.

20. In order to make any such scheme practicable, it will be necessary to classify the hundreds of varieties now being grown in the province into different grades of definite specifications, on which the prices may be based. If this be possible, the next step will be to educate the merchants, middlemen and producers about these grades. Then again a huge staff of trained men will be necessary to settle disputes and to see to it that all concerned recognise these grades and pay for them accordingly. In my opinion fixation of minimum price for paddy is fraught with immense difficulties and is not a practical proposition.

21 to 23. Do not arise in view of the opinion expressed above.

24. It is difficult to mention any general average difference between the price paid to the cultivator and that paid by the miller or exporter, as this varies in different parts under different circumstances. In many places producers themselves cart their produce direct to the millers, while in other places business is usually done through one or more intermediaries. Again the difference is likely to be less when the paddy is sold to a mill in the producer's own district, than when it has to be sent a long distance by rail to other districts. For example, there are many mills in Burdwan as well as in Calcutta and paddy grown in Burdwan is sold to mills at Burdwan as well as to mills at Calcutta. The prices paid by the Calcutta millers for Burdwan paddy will naturally be more than that paid by the Burdwan millers in view of the extra cost incurred for transport and other incidental charges for sending paddy from Burdwan to Calcutta. Under these circumstances no average difference can be given to convey a true picture of the situation.

25. Yes.

26. Cultivators pledge their crops to a small extent in some of the districts. In that case it does effect the price obtained by him as he is bound to sell his crop to the person pledged with at a price which is always lower than the market rate.

27. Different standards of weights and measures do not usually affect the price obtained by the cultivator for his crop, as he is generally aware of the standard in vogue in his area and whatever the standards, they remain in use in the same market for all time. But he is cheated to some extent at the time of weighing or measuring due to the clever manipulations of the weighman or the measurer.

Marketing.

28. (a) Producers generally bring the paddy to a hât or other trading centre in carts or boats and sell to farias, who in turn sell to and through aratdars. The aratdars sell to mills or beparis or merchants from other places. Sometimes the producers cart their produce and sell direct to the mills as well. In some places koyals, i.e., persons who do the weighment go about the villages enquiring about stocks of paddy available for sale by producers, from whom they take samples and show to prospective buyers, who may be merchants or mills' agents. When prices are settled, the koyal weighs the paddy at

the producer's place where the buyer takes delivery in his own or hired carts or boats. The koyal is paid the weighing charge by the buyers at 6 pies per maund.

(b) The present system is not very satisfactory.

(c) The principal defects are the following:—

- (1) The producer has to sell through many intermediaries who take a substantial amount of the profit which the producer could make if he could sell direct to the mills or merchants.
- (2) He has to give Dhalta, i.e., an allowance of about 1 seer per maund to cover wastage in transit, etc.
- (3) He has to pay many charges in the market, such as, market toll, Briti or gowshala, brokerage, weighing charges besides charges for sweepers, clerks of the aratdars or merchants. Over and above that the servants of the lessees of the markets consider themselves entitled to a share of his produce. They are also cheated in weight due to the clever manipulations of the weighmen, who are paid by the merchants or aratdars and naturally are inclined to look more to the interest of their employers.

29. The marketing customs and allowances in cash and kind stated above to affect the price obtained by the producers.

30. Yes, uniform weights and measures should be fixed, weights should conform to 80 tolas to a seer, and 40 seers to a maund, i.e., standard maund. Measures in use are of different sizes and of different materials which can be made to contain varying quantities at will by clever manipulation. Measures should therefore be made of some metal, say brass or copper and should be of 2½ or 5 capacity, for fine medium and coarse varieties separately.

(b) Legislation will be necessary to enforce the use of standard weights. Bombay has already successfully tackled this problem by means of legislation. There should be no difficulty in enforcing such a legislation. Only a well-organised staff is required which will pay for itself and may even be a source of revenue to the Government as in Bombay.

31. (a) Paddies are always sold by their names, although sometimes one or two varieties of similar quality may be mixed together. Sales are always arranged on samples.

Rice is also generally sold by name and on sample. But in actual practice one variety may be passed off under another name in some cases. Sometimes a name is given to a quality which is a mixture of two or more varieties of rice. So name is not the all important factor, as all rice is sold on sample.

The following practice in Calcutta will illustrate the statement made above:—

Magra and Jhingasal, if of a fine quality, is sold as Bhasamanik rice. Sitala, if without any stones, is sometimes sold as Chamarmoni. Kalma, if fine and of good colour, is passed off as Jhingasal. Patnai itself differs in quality to a great extent, the difference in price between the best and the worst qualities being as much as 12 annas per maund. Indrasail and Paneti of Dinajpur are also sold in Calcutta as Nigra rice. Kataribhog rice also comprises Kataribhog and Joshua in mixture.

(b) No doubt standardization of grades will be a very difficult task. A huge trained staff will be necessary to educate all concerned about these grades and to enforce the grades as well as to settle disputes which are bound to be many. It appears it will be desirable to have standard grades which would make comparisons of prices more convenient and prices more steady.

(c) A statutory body consisting of officials and trade representatives should determine the standards.

(d) The specifications of standard grades could be widely advertised and all business may be enforced by those standards. Some simple tests can be adopted. The Agricultural Marketing Adviser to the Government of India has done some work on this subject. Disputes could be settled by Local Committees set up under the above statutory body.

32. Prices prevailing in the Calcutta Wholesale Paddy and Rice Markets do affect the prices paid to the cultivators to some extent, because of nearly 400 rice mills in Bengal, there are about 150 mills, in and near about Calcutta and they receive their supplies of paddy mostly from the districts of 24 Parganas, Khulna, Midnapore and Burdwan as also from Dinajpur, Malda, Rangpur, Hooghly and Bankura; but not to such a great extent as in the case of jute for which Calcutta is the chief terminal market. The producing cultivators have no means of knowing these prices and the movements that occur. So, in order to convey this information to the cultivators, arrangements should be made to collect weekly statistics and all the Union Boards should be regularly supplied with them. The Union Boards in their turn should arrange to circulate this information as widely as possible in different hâts or markets. This information should also be broadcast from the Calcutta Radio Station every Saturday or Sunday by arrangement with the Marketing Department. Such an arrangement is already on the programme of future Development work to be undertaken by the above Department.

Regulated markets.

33. (a) Yes.

(b) In order to make the scheme successful, there should be at least one regulated market in each thana.

(c) The sites of such markets should be selected by the Marketing Department in consultation with the District Officers and other influential local people and merchants.

(d) The Marketing Committee should consist of the Presidents and a member or two of the Union Boards in the area as well as merchants. The Marketing Department should also be represented. As a matter of fact, I think, all the regulated markets should be under the control of the Marketing Department.

(e) The market should be financed by buying certain definite and well-defined charges from the buyers and sellers in the markets as is the case with the existing markets with this difference only that in these privately owned markets there are at present no definite and well-defined charges and merchants may do as they like, although on the whole there is some system of uniform charges levied by all merchants generally.

(f) Such regulated markets are likely to attract buyers and sellers on account of the fair dealing and definite charges prevailing in the market. Honest and fair-minded dealers are likely to welcome such institutions.

It will be necessary to prohibit dealings outside such markets, if necessary by legislation in order to make them a success.

Co-operative Sale Societies.

34. (a) Yes.

(b) The societies should be registered bodies with sufficient capital to enable them to advance at least 75 per cent. of the value of the produce offered by the members for sale, immediately on receipt of the produce. The society should also be able to raise money by loan from the Provincial Co-operative Bank at a reasonable interest wherever necessity arises for such loans. The loan will be fully secured by the stock held by the society. I think necessary legislation already exists for running such sale societies. The manager and other employees should be selected with great care, preference being given to those possessing business instincts and honesty.

(c) I do not think there will be any difficulty in financing these societies.

(d) Yes, these societies are more likely to succeed if they operate through regulated markets, because the net profit made by the societies is likely to be more on account of definite and well-defined market charges and absence of dishonest and unfair dealings. At present the Co-operative Sale Societies have to abide by the rules prevailing in the markets concerned and they as well as the other merchants have to pay and levy the same market charges. The society should be represented on the market Committee and should be treated just like any other merchant dealing in the market.

(e) (i) Societies should be organised on the same lines as the existing co-operative paddy sale societies.

35. (a) Existing means of communication in the mufassil do hamper marketing to some extent inasmuch as the roads are mostly katcha, which become impassable during the rains, and make movements of produce difficult. But the reverse is the case in Eastern Bengal, where during the rains movement by boats from and to the interior is facilitated, when the cost of transport by boat becomes considerably lower than rail or even by road.

(b) A general statement cannot give a true picture of the position, as the charges for conveyance must vary according to the distance of the wholesale markets from the producing centres and the existing state of communications. The present charges cannot be said to be excessive.

A few typical figures are given below to give an idea about the charges for conveyance by road, railway, steamer and country boats.

In the mufassil the charges for a cartload of say 8 to 10 maunds vary from Re. 1.4 to Re. 1.12 for a distance of 8 to 10 miles. In the towns the charges may be 4 annas or 5 annas to Re. 1 according to a distance of say 1 to 3 or 4 miles. Transport by motor lorries is also quite common in Calcutta, while transport by carts is also prevalent.

From Kidderpore Docks to Burrabazar transport by lorries costs 3 annas per bag of 2 or 2½ maunds.

Cart hire for 15 maunds from Howrah Station to Burrabazar is about Re. 1 to Re. 1-2. Cart-hire from Chetla railway siding to Chetla godowns (½ to 1 mile) for a cartload of 16 maunds is 4 annas and to mills 6 annas to 8 annas.

Cart hire from Baje Pratabpur to Burdwan station (about a mile) 3 pies per maund. Cart hire from Sadar-Ghat to Burdwan Station (about 3 miles) 7 annas for 13 bags (about 20 maunds). Cart hire from Jetty to Rice godowns at Chittagong (about 1½ mile) at 1 anna per bag of 2 maunds.

Comparative charges by boat and steamer from Bogabunder (district Bakarganj) to Chandpur:—

	Freight.	Time taken.
By Steamer ..	3-6 per md.	.. 2 to 3 days.
By Boat ..	2 as. to 2-6 per md.	.. 4 to 7 days.

From Barisal to Calcutta :—

By Steamer ..	4 as. per md.	.. 6 days.
By Boat ..	1 a. to 1-6 per md.	.. 10 to 15 days.

The following are the railway freights from Hili, an important centre for rice to some stations on the Eastern Bengal Railway:—

	Per maund.
	As. p.
Siliguri	3 4
Jalpaiguri	3 0
Nilphamari	2 0
Ishurdi	2 10
Krishnagar City	4 8
Ranaghat	4 5
Serajganj Bazar	3 9
Dacca	5 7
Narayanganj	5 9
Barrackpore	4 6
Rajshahi	3 1
Calcutta	<div style="display: inline-block; vertical-align: middle;"> <div style="font-size: 3em; vertical-align: middle;">{</div> <div style="display: inline-block; vertical-align: middle;"> 5 1 3 9* </div> </div>

*Special rate for consignment of 300 maunds and above.

Railway freight from Sainthia to some stations on the East Indian Railway:—

				Per maund.
				As. p.
Raniganj	..	..	..	1 11
Giridhi	..	..	..	3 8
Jamalpur	..	..	..	4 4
Patna City	..	..	..	5 9

Steamer freight between certain stations :—

				Per maund.
				As. p.
Bagabundar to Calcutta	..	..	..	4 6
Bagabundar to Narayanganj	..	..	..	6 1
Bagabundar to Dacca	..	..	..	4 8
Bagabundar to Chandpur	..	..	..	3 6
Bagabundar to Mirkadim	..	..	..	3 9
Khulna to Calcutta	..	..	..	4 0
Barisal to Calcutta	..	..	..	4 0
Narayanganj to Calcutta	..	..	..	3 6
Dacca to Calcutta	..	..	..	3 6
Mirkadim to Calcutta	..	..	..	3 6
Chandpur to Calcutta	..	..	..	4 0
Narsingdi to Calcutta	..	..	..	4 0
Bhairab to Calcutta	..	..	..	4 0

Cost by boat—

Barisal to Calcutta	..	About 1a. per maund.
Bagabundar to Chandpur	..	2 as. to 2 as. 6 p. per maund.
Bagabundar to Barisal	..	1a. 3p. to 1a. 6p. per maund.

Transport by boat is cheaper than by steamer but the boats take a longer time for the journey.

Foreign marketing.

36. (a) Burma is the chief source of imports of rice into Bengal and the following are the important grades imported:—

Boiled:—

1. Full boiled. 2. Milchar. 3. Long.

White or Raw:—

1. Nekranji. 2. Specials (Rangoon). 3. Small mill. 4. Sugandhi. 5. Dawebiyani.

The qualities of rice imported from Punjab, United Provinces, etc., are as follows:—

Punjab—Mainly Amritsari which comprises Basmati, Hansraj, Dehradun and Wand.

United Provinces—Mainly Basmati of Dehradun.

Bihar and Orissa—Mainly Sital, Kazla and Mota.

Central Province—Cheap coarse varieties which are mainly consumed in the tea estates and coal fields.

The following qualities and varieties are generally exported to foreign countries:—

White rice.—Mainly to United Kingdom and the European continent and Cuba.

Parboiled rice.—To America, Africa, Arabia, Ceylon and other places.

The varieties generally exported to other countries are as follows:—

Patnai.—To United Kingdom, Palestine, South Africa, Mauritius, British West Indies, Canada, Germany, Netherlands, France, Turkey in Europe, Turkey in Asia, Greece, Arabia, Egypt, French Somaliland, Cuba and United States of America.

Kalma.—To Aden, Maldives, Ceylon, Straits Settlements, Fiji, South African, Mauritius, Syria.

Balam.—To Bahrain isles, Seychelles, Arabia, Muscat, Persia and French West Indies.

Banktulasi.—To Straits Settlements, Ceylon, Maldives and Hong-Kong.

Sital.—To Kenya Colony, Zanzibar, Aden, Somaliland Protectorate, Tanganyika, Sudan, Arabia, Portuguese East Africa, Italian East Africa, French Somaliland, French West Africa.

(b) For imports and exports, there are certain qualities as mentioned under (a), which are well-known in the trade. So purchases and sales are arranged by naming the qualities required. Samples are also sent at the beginning of the season, as the quality of the produce differs in different years due to climatic conditions. For exports to European countries, the London Rice Brokers' Association makes samples in London which are sent by the London houses of different shippers in Calcutta about the middle of September for next season's business. So grades have to be manipulated by the local shippers according to these samples.

(c) There are no fixed standards of quality as the quality of each year's crop varies according to climatic conditions. For the export to European countries, as already stated under (b) the London Rice Brokers' Association is the final authority to fix standards and to arbitrate in case of disputes as to quality shipped.

The rice for export to European countries is generally assembled into the following grades by sifting Gross Rice:—

1. B.T.R.—Broken Table Rice (Small broken or pince khud).
2. B.B.R.—Broken Bold Rice, i.e., the grade above Pinu khud.
3. Largo.—New standard of 1937 introduced by London for season 1936-37. It is similar to B.B.R. but contains a few full grains of rice.—Small full grains.
4. Seeta.—Whatever remains after taking out the above.

No business is done now-a-days in Table Rice or Gross Table Rice.

(d) In my opinion the system followed by merchants in the import trade and the export trade to countries other than European countries seems to be satisfactory. Only in the case of exports to European countries it seems necessary to do something. At present the London Rice Brokers' Association is the final and sole authority to decide grades and judge qualities and every shipper is bound to accept the decision of this Association, which is detrimental to the interests of local shippers. I think the grades for shipment should be decided upon by the Central Marketing Department in consultation with shippers according to foreign demand and it should not be with the London Rice Brokers' Association to be the final authority. They must recognise the grades made here and disputes, if any, as regards the quality actually shipped should be decided by referring the matter to the local marketing department. The shippers should not be at the mercy of the London Rice Brokers' Association; but at the same time the Marketing Department should see to it that the shippers conform to the grades decided upon.

37. I do not think that transport charges affect the export trade to any substantial extent, but the lowering of transport charges is sure to help the export trade to some extent inasmuch as the shippers will be enabled thereby to offer rice at a slightly cheaper rate in the foreign market than at present.

A few comparable figures of freight charges are given below :—

Calcutta to Brem, Rotterdam, Antwerp and Hamburg—33s. 9d. per ton of 20 Cwts.

Calcutta to London—37s. 6d. per ton of 20 Cwts. less a rebate of 10 per cent. Saigon to Bordeaux, Rotterdam Range, Liverpool—28s. 6d. *via* the Cape during the 1st to 12th November 1938.

Saigon to Bordeaux, Hanre, Rouen, Dunkirk, Antwerp, Rotterdam—28s. per ton during 15th to 28th November 1938.

38. A central organisation comprising the Marketing Department and trade interests, e.g., shippers and merchants as well as representatives of producers is highly desirable and essential for the regulation and improvement of the foreign trade.

This organisation should take the following steps in order to improve the foreign trade :—

1. Arrange for proper grading.
2. Keep up-to-date information about the requirements of foreign markets.
3. Keep up-to-date information regarding local production, demand and prices.
4. Circulate among growers and merchants information regarding foreign requirements, prices, etc.
5. Act as arbitrators in case of disputes.

APPENDICES

APPENDIX I. Prices of 5 varieties of Paddy at Chettia, Calcutta.

Variety.	Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Patna ..	1931 ..	Rs. a. p. 2 9 0	Rs. a. p. 2 7 0	Rs. a. p. 2 8 3	Rs. a. p. 2 8 6	Rs. a. p. 2 8 6	Rs. a. p. 2 8 6	Rs. a. p. 2 9 6	Rs. a. p. 2 7 6	Rs. a. p. 2 8 0	Rs. a. p. 2 4 0	Rs. a. p. 2 5 6	Rs. a. p. 2 2 6
	1932 ..	2 2 6	2 2 0	2 4 0	2 1 6	2 0 0	2 0 0	1 14 0	2 1 0	1 14 6	2 1 6	2 0 0	2 0 0
	1933 ..	1 12 0 (New). 1 14 0 (Old).	2 0 0	2 0 0	1 12 6	1 14 0	2 4 6	2 6 0	2 5 0	2 6 0	2 6 0	2 5 0 (New).	1 14 0 (Old). 1 12 0 (New). 2 5 0
	1934 ..	2 5 0	2 6 0	2 6 0	2 4 0	2 4 0	2 4 0	2 6 0	2 6 0	2 6 0	2 6 0	2 2 0	2 2 0
	1935 ..	2 10 0	1 12 0	2 8 0	2 8 0	2 10 0	2 10 0	2 10 0	2 10 0	2 12 0	3 0 0	2 6 0 (New). 2 6 0 (New). 2 12 0 (Old).	2 6 0 (New). 2 6 0 (New).
Kaima ..	1936 ..	2 9 0	2 8 0	2 8 0	2 8 0	2 8 0	2 10 0	2 10 0	2 9 0	2 6 0	2 8 0	2 2 6	2 2 0
	1937 ..	2 1 0	2 2 0	2 1 0	2 0 6	2 3 0	2 2 0	2 2 0	2 1 0	2 2 0	2 2 6	1 14 9	2 1 0
	1938 ..	1 14 0	1 13 0	2 0 0	..	..	..	..	..	..	..	..	..
	1931 ..	2 2 9	1 13 6	2 2 9	2 0 0	2 0 0	2 0 0	1 15 0	2 3 6	1 13 6	1 15 0	2 1 3	1 14 0 (New). 1 8 0 (New).
	1932 ..	1 9 0	1 11 0	1 12 0	1 14 0	1 12 6	1 11 0	1 14 0	1 14 0	1 14 0	1 14 0	1 14 0	1 8 0 (New). 1 11 0
Jhingasal	1933 ..	1 9 6 (New).	1 8 6	1 8 6	1 8 6	1 10 0	1 13 0	2 0 0	2 0 6	2 1 0	2 0 6	1 14 0	2 8 0
	1934 ..	2 4 0	2 4 0	2 6 0	1 11 3	1 13 6	2 0 0	2 0 0	2 2 0	2 4 0	2 5 0	1 15 0	2 5 0
	1935 ..	2 2 6	2 3 0	2 4 0	2 2 6	2 4 6	2 4 0	2 5 6	2 5 0	2 5 0	2 8 0	2 8 0 (New).	2 8 0
	1936 ..	2 6 0	2 4 0	2 4 0	2 5 0	2 6 0	2 6 0	2 6 0	2 6 0	2 4 0	2 6 0	1 14 0	1 14 0
	1937 ..	1 12 0	1 12 0	1 12 0	1 10 0	1 10 0	1 12 0	1 14 0	1 12 0	1 14 0	1 12 0	1 12 0	1 13 0
1938 ..	1 13 6	1 10 0	1 12 0	..	..	..	..	..	..	..	..	..	..
1931 ..	2 3 0	1 14 0	2 3 9	2 2 0	2 2 0	2 2 0	2 2 3	2 2 0	2 1 0	2 1 6	2 3 6	2 1 9	2 2 0

APPENDIX I. **Prices of 5 varieties of rice at Chettis, Calcutta.**

Variety.	Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Patna ..	1931 ..	Rs. a. p. 4 1 0	Rs. a. p. 3 12 0	Rs. a. p. 3 13 0	Rs. a. p. 4 0 0	Rs. a. p. 4 0 0	Rs. a. p. 4 0 0	Rs. a. p. 4 2 0	Rs. a. p. 4 6 0	Rs. a. p. 4 2 0	Rs. a. p. 4 0 0	Rs. a. p. 3 12 0	Rs. a. p. 3 8 0
	1932 ..	3 10 0	3 8 0	3 11 0	3 8 0	3 8 0	3 6 0	3 4 0	3 8 0	3 6 0	3 6 0	3 4 0	3 4 0
	1933 ..	2 14 0	2 12 0	2 14 0	2 13 0	2 13 0	3 2 0	3 4 0	3 8 0	3 6 0	3 7 0	3 7 0	3 8 0
	1934 ..	3 2 0	3 4 0	3 8 0	3 7 0	3 8 0	3 11 0	3 11 0	4 4 0	4 0 0	3 14 0	3 14 0	3 7 0
	1935 ..	3 8 0	3 11 0	3 9 0	3 12 0	3 12 0	3 14 0	3 14 0	3 14 0	3 15 0	4 0 0	4 1 0	4 0 0
	1936 ..	4 4 0	4 2 0	4 2 0	4 4 0	4 3 0	4 7 0	4 7 0	4 6 0	4 1 0	4 4 0	3 12 0	3 11 0
	1937 ..	3 9 6	3 10 0	3 9 6	3 8 0	3 11 6	3 11 0	3 12 0	3 9 6	3 10 0	3 11 9	3 6 0	3 9 0
	1938 ..	3 5 0	3 2 6	3 6 0	..	..	..	..	..	..	..	..	..
Kalna	1931 ..	4 2 0	3 8 0 (New)	3 10 0	4 2 0	3 13 0	3 12 0	3 14 0	4 0 0	3 12 0	3 12 0	3 12 0	3 12 0
	1932 ..	3 8 0	3 5 0	3 7 0	3 4 0	3 6 0	3 4 0	3 8 0	3 8 0	3 7 0	3 7 0	3 6 0	3 5 0
	1933 ..	3 4 0	3 2 0	3 0 0	3 9 0	3 1 0	3 2 0	3 8 0	3 8 0	3 8 0	3 10 0	3 8 0	3 9 0
	1934 ..	3 1 0	3 1 0	3 3 0	3 3 0	3 7 0	3 8 0	3 12 0	4 2 0	4 2 0	4 0 0	3 14 0	3 4 0
	1935 ..	4 2 0	4 0 0	4 2 9	3 14 0	3 14 0	3 15 0	3 15 0	3 15 0	3 15 0	4 3 0	4 4 0	4 3 0
	1936 ..	4 0 0	3 14 0	3 14 0	3 15 6	4 1 0	4 1 0	4 1 0	4 1 0	3 12 0	4 1 0	3 6 0	3 5 0
	1937 ..	3 1 0	3 1 0	3 2 0	2 12 0	2 12 0	3 2 0	3 4 0	3 4 0	3 6 0	3 2 0	3 2 0	3 4 0
	1938 ..	3 4 0	2 14 0	3 0 0	..	..	..	..	..	..	..	..	..
Jhingaui	1931 ..	4 4 0	3 14 0	3 13 0	4 0 0	4 2 0	4 2 0	4 4 0	4 4 0	4 2 0	4 2 0	4 0 0	3 12 0
	1932 ..	3 12 0	3 8 0	3 10 0	3 9 0	3 8 0	3 8 0	3 8 0	3 9 0	3 10 0	3 10 0	3 10 0	3 12 0
	1933 ..	3 6 0	3 6 0	3 4 0	3 3 6	3 4 0	3 4 0	3 10 0	3 10 0	3 10 0	3 12 0	3 10 0	3 12 0

1934 ..	3 1 0	3 5 0	3 8 0	3 6 0	3 10 0	3 11 0	3 14 0	4 4 0	4 3 0	4 2 0	4 2 0	3 11 0
1935 ..	3 12 0	4 4 0	3 13 0	3 15 0	4 0 0	4 1 0	4 2 0	4 1 0	4 1 0	4 4 0	4 5 0	4 7 0
1936 ..	4 2 0	4 0 0	4 0 0	4 0 0	4 2 0	4 2 0	4 2 0	4 2 0	3 14 0	4 2 0	3 6 6	3 6 6
1937 ..	3 5 0	3 6 6	3 3 6	3 0 0	2 13 0	3 3 0	3 5 0	3 4 6	3 6 6	3 6 6	3 4 0	3 6 0
1938 ..	3 5 0	3 0 0	3 1 0	..	..	..	..	..	..	..	..	..
1931 ..	3 0 0	3 0 0	3 1 0	3 2 0	3 4 6	3 4 0	3 0 0	3 4 0	3 0 0	3 0 0	3 0 0	3 0 6
1932 ..	2 12 0	2 12 0	2 9 6	2 12 0	2 13 0	2 13 0	2 15 0	2 15 0	2 9 6	2 10 0	2 10 0	2 13 0
1933 ..	..	..	2 4 0	..	..	..	..	..	..	..	..	..
1934 ..	..	2 10 0	2 9 0	2 9 0	2 12 0	2 13 0	2 12 0	3 6 0	3 4 0	3 0 0	..	..
1935 ..	3 0 0	3 3 0	3 10 0	3 2 0	3 3 0	3 6 0	3 5 0	3 6 0	3 6 0	3 5 0	3 3 0	3 6 0
1936 ..	3 8 0	3 6 0	3 8 0	3 10 0	3 11 0	3 1 9	3 12 0	3 6 6	3 2 6	3 2 0	3 2 0	2 14 0
1937 ..	2 12 0	2 12 0	2 10 0	2 8 0	2 8 3	2 14 0	3 1 0	3 2 0	3 0 0	2 14 0	2 14 0	3 0 0
1938 ..	2 10 0	2 8 0	2 10 0	..	..	..	..	..	..	..	..	..
1931 ..	4 14 0	4 0 0	4 4 6	4 6 0	4 6 0	4 4 0	4 6 0	4 6 0	4 4 0	4 5 0	4 6 0	4 0 0
1932 ..	4 0 0	3 12 0	3 12 0	3 12 0	3 10 0	3 10 0	3 10 0	3 2 0	4 0 0	4 0 0	3 12 0	2 12 0
1933 ..	3 10 0	3 8 0	3 7 0	3 4 0	3 5 0	3 6 0	3 12 0	3 13 0	3 15 0	3 15 0	3 14 0	4 0 0
1934 ..	3 5 0	5 6 0	3 12 0	3 11 0	3 12 0	3 15 0	3 13 0	4 7 0	4 6 0	4 5 0	4 4 0	3 14 0
1935 ..	4 2 0	4 6 0	4 1 0	4 0 0	4 4 0	4 4 0	4 5 0	4 5 0	4 5 0	4 6 0	4 8 0	4 9 0
1936 ..	4 2 0	4 1 0	4 1 0	4 0 0	4 2 0	4 2 0	4 2 6	4 2 0	3 14 0	4 2 0	3 6 0	3 6 6
1937 ..	3 3 0	3 3 0	3 3 6	3 0 0	2 11 0	3 3 0	3 5 0	3 4 0	3 6 0	3 6 0	3 4 0	3 5 0
1938 ..	3 7 0	3 0 0	3 1 0	..	..	..	..	..	..	..	..	..

Mota ..

Negra ..

APPENDIX II.**Monthly price of Punjab wheat at Calcutta.**

Name of months.			1931.	1932.	1933.	1934.	1935.
			Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
January	..	..	3 2 0	3 12 3	4 4 0	3 1 3	3 8 3
February	..	..	3 4 0	3 9 0	4 5 0	3 3 0	3 7 0
March	..	..	3 0 0	3 8 0	3 14 6	3 3 6	3 3 0
April	..	..	2 10 6	3 5 6	3 10 3	3 0 9	3 4 0
May	..	..	2 12 0	3 1 3	3 7 3	3 2 6	3 5 6
June	..	..	2 12 0	3 4 3	3 12 0	3 3 0	3 4 3
July	..	..	2 13 0	3 9 3	3 12 0	3 2 0	3 5 0
August	..	..	2 14 0	3 14 3	3 11 0	3 2 6	3 4 3
September	..	..	2 8 6	4 1 0	3 7 0	3 0 3	3 6 0
October	..	..	2 10 0	4 2 0	3 3 0	2 15 0	3 9 0
November	..	..	3 2 0	3 14 6	3 6 6	2 14 6	3 9 6
December	..	..	3 6 6	3 15 0	3 3 9	3 5 0	3 8 0
Average for the year	..	..	2 14 6	3 10 6	3 10 6	3 1 9	3 6 0

APPENDIX III.**Imports of paddy and rice from Burma (tons).**

Year.			Paddy.	Rice.
1930-31	..	..	26,000	123,000
1931-32	..	..	42,000	315,000
1932-33	..	..	3,000	130,000
1933-34	..	..	25,000	472,000
1934-35	..	..	66,000	840,000
1935-36	..	..	40,521	257,017
1936-37	..	..	25,391	380,594
1937-38	..	..	4,386	145,185
1938-39	..	..	2,459	110,200 (For 9 months April-December 1938.)

APPENDIX IV.**Area under and production of rice in Bengal.**

Year.					Area (acres).	Outturn (tons).
1926-27	..	..	..	..	19,713,900	7,355,000
1927-28	..	..	..	..	18,682,200	6,493,000
1928-29	..	..	..	..	21,403,900	9,684,000
1929-30	..	..	..	..	20,224,600	8,202,000
1930-31	..	..	..	..	20,582,000	9,206,000
1931-32	..	..	..	..	22,128,800	9,493,000
1932-33	..	..	..	..	21,771,400	9,364,000
1933-34	..	..	..	..	21,672,500	8,680,000
1934-35	..	..	..	..	20,738,700	8,273,000
1935-36	..	..	..	..	21,091,900	7,207,000
1936-37	..	..	..	..	21,960,000	10,638,000
1937-38	..	..	..	..	22,200,500	9,033,600

APPENDIX V.**Exports of rice by sea from Bengal to other British possessions and foreign countries.**

	Tons.	
1926-27	..	109,204
1927-28	..	126,896
1928-29	..	106,897
1929-30	..	120,040
1930-31	..	118,886
1931-32	..	123,185
1932-33	..	120,195
1933-34	..	107,657
1934-35	..	94,151
1935-36	..	80,150
1936-37	..	110,752
1937-38	..	105,885

APPENDIX VI.

Statement showing the exportable surplus of Burma, Siam and Indo-China for 1939 and actual exports of rice from these countries during the last 6 years.

Tons.					
Actual exports up to 7th December 1938	..	..	..	..	2,960,000
Actual exports during—					
1937	..	..	..	..	3,194,336
1936	..	..	..	..	3,128,112
1935	..	..	..	..	3,202,530
1934	..	..	..	..	3,779,116
1933	..	..	..	..	3,295,885

Siam.—The exportable surplus of rice and rice products for 1939 is privately estimated to be 1,600,000 tons :—

Tons.					
Actual exports up to 30th September 1938	..	..	..	..	1,148,606
Actual exports during—					
1937	..	..	..	..	944,364
1936	..	..	..	..	1,586,075
1935	..	..	..	..	1,545,532
1934	..	..	..	..	1,945,760
1933	..	..	..	..	1,586,033

Saigon.—The exportable surplus of rice and rice products for 1939 (as given in report, dated the 2nd December 1938) is estimated to be 1,600,000 tons :—

Tons.					
Actual exports up to 10th November 1938	..	..	..	..	1,007,000
Actual exports during—					
1937	..	..	..	..	1,548,358
1936	..	..	..	..	1,711,775
1935	..	..	..	..	1,718,363
1934	..	..	..	..	1,571,100
1933	..	..	..	..	1,220,987

Grand total of estimated quantity available for export from the three chief rice exporting countries in the East—6,700,000 tons :—

This compares with the summary for the last 6 years as follows :—

Tons.					
Shipments up to abovementioned dates in 1938	..	..	..	..	5,115,606
Actual exports during—					
1937	..	..	..	..	5,687,058
1936	..	..	..	..	6,425,962
1935	..	..	..	..	6,466,425
1934	..	..	..	..	7,295,976
1933	..	..	..	..	6,102,905

Note on the importance of pure improved pedigreed seeds in crop production by Economic Botanist, Dacca Farm.

This article aims at discussing in brief, as to how improved pedigreed seed of any crop can be produced and the importance of such seed in crop production.

At the outset it is essentially necessary to know what is really understood by "pure improved pedigreed seed".

By "pure seed" an ordinary man, who is ignorant of the scientific truth involved in it, would take a sample of seed of any crop to be pure if it does not contain dust, sand or seeds of any other crop or if the seeds are not discoloured in any way nor possess any bad smell. But these are not the only factors which determine the purity of seeds. In fact the purity of seed is, for the most part, determined by the purity of its inherent genetical characters.

Let us see, for example, what kind of seed paddy is generally used by a cultivator for sowing purposes. A casual observation will show that the sample is on the whole clean, that is to say, as an ordinary man understands by "purity", it is on the whole good but may be constituted of two, three or more kinds of paddy seeds. Outwardly these different strains may differ only in size and shape or colour or in both but the fact, that apart from the presence of external difference, their inherent qualities may not also be geneticaly identical, is not known to an ordinary mind.

One of these may flower early whereas another may be late or one may be a very heavy yielder whereas another may be light in this respect. Thus, there are present in these different strains of paddy various diversities due to various combinations of such diverse characters. So, if, from this sample, the different strains endowed with different characters are sown separately or the whole sample is sown, as it is, in a mixed condition, a great difference will be observed as a result, in the behaviours and yield of the crop from two such treatments and from this it will be obvious as to wherein lies the importance of purity of seeds. Therefore, by "pure seeds" it should be understood as seeds having the same genetical constitution regarding the characters of which they are made up.

By "improved seeds of pure pedigree" one should understand only those seeds of the sample which possess desirable characters or combination of characters of genetic purity. The word desirable in this connection requires further elucidation.

In the production of crops all people might not look for the same thing. Some are satisfied with the heavy yield of their paddy while some want fine, early or fragrant paddies irrespective of their yielding capacity. Others, on the other hand, would like to have all the above qualities in their paddy combined with heavy yield. Thus the tastes and tendencies of different people are different. So, those paddies which possess characters conforming to the different tastes of different individuals, may be said to be endued with different desirable characters.

In order to investigate into the qualities of these different strains of paddy as they are called, a definite scientific procedure is followed.

1. To begin with, from a mixed sample, all the different kinds of paddies are to be sorted and separated out on the basis of external differences.

2. These different kinds of seeds are then sown separately in different small plots and all the characters of the plants raised therefrom are recorded.

In this experiment, those plants which are found to possess different characters in the first year are separated out and sown again, the following year, in separate small plots and the characters of the progeny are again recorded. This procedure goes by the name of "Isolation of pureline".

In this way, the experiment being continued for three consecutive years, it will be seen that the progeny of some of the "Original seed" have been maintaining the purity of their characters all along whereas those of some others, instead of doing so, have all along been giving rise to plants possessing characters of diverse nature.

All the "Original seeds", the progeny of which manifest the same characters or combination of characters year after year are said to breed pure and as such form the "purelines" and others which do not behave in a similar way are known as "splitting lines". The latter, on account of their heterogeneous constitution, this is to say, in ordinary language, on account of their impure blood are always prone to give rise to differences in characters.

These splitting lines, unless there is any special object of keeping them, are generally rejected.

After the purelines are once established, considerable care and precaution are taken to see that none of them again get hybridised by cross pollination from plants belonging to different purelines.

In this way quite a large number of purelines have been established by the Agricultural Department from numerous samples of paddies collected from different parts of Bengal.

3. The next step after the establishment of purelines is to make a selection of the strains possessing the characters for high yield or other desirable qualities in view, based on a close observation and experiment continued for three years. The pureline strains thus picked out are known as "selected pureline strains".

4. These selected pureline strains are then, according to the latest method of field experimentation, grown for five consecutive years separately in small plots against the most heavy yielding and popular local variety of the same class or against any other standard and after harvesting, threshing, drying, etc., of the crop, the weight of grain and straw are recorded for each plot separately. This period of five years may be cut short to three years if suitable climatic conditions for the cultivation of paddy is available for three consecutive years. This procedure is known as the preliminary trial of selected pureline strains.

5. At the end of five years' test, all those strains, which are found to be the best on the average, are sent out to the different districts, to be tried in field-scale-tests against the best and the most popular local varieties of the same class in the different Government Agricultural Farms in bigger sized plots. This work is also continued for five years but the period may as well be cut down by two years provided a favourable season is available for three consecutive years.

This, so to say, is the final procedure and as such is known as the final trial of selected strains. The strains which are proved, on the

average, in a particular locality, to be the best in this test are ultimately recommended for the place and the seeds of the same are distributed to the cultivators of the locality in question for propagational purposes.

Thus by the abovementioned processes, improved strains of various sorts suitable to diverse conditions are evolved. In this connection one important fact has to be kept in mind, that the strain or strains once obtained as suitable to a particular locality or set of conditions might not remain as such for all time to come. They may be superseded by better strains which may come out of researches continued thereafter.

So it must be remembered that the work of "improvement of crops" cannot be bounded by a limit of time. The work of crop improvements in the world will go on as long as Agriculture continues to be.

There is also another way of producing improved strains of crops apart from the processes described already. It is known as Hybridisation.

During the course of observation it may be found that a particular combination of desirable characters does not exist in the purelines examined.

For instance, in certain strains there is only the high yielding capacity whereas in certain others the grain is long and white and lastly some may be characterised by early maturity. Thus supposing, if it is required to evolve a strain in which the capacity of high yield is combined with early maturity, it will be necessary to cross two individuals belonging to two different purelines possessing these characters. Then from the progeny of such a hybrid, strains having the desired combination are selected. Subsequently these selected hybrid strains are tested, according to the five procedures described already, with a view to pick out only those of the highest potentiality.

This whole process is a very complicated one and as such won't be easily intelligible to ordinary people. So it has just been described briefly in this paper. It is obvious, from the discussions which have been continued so long, that the production of pure improved pedigreed seeds is not an easy matter. This work cannot be accomplished well without sufficient specialised knowledge, patience, men and money but it can be said without any reservation that whatever may be the amount of money or labour spent in this direction, is repaid thousandfold in the valuable results derived from it.

In other progressive countries of the world there are many business organisations who spend quite a lot of money towards the production of improved pedigreed seeds of various crops according to scientific principles and not only have they been making a mint of money by selling such seeds but have been increasing their national wealth as well. In India, on the other hand, there being no such business organisations, the Government have taken up this work on themselves. Alike other provinces of India, the Government Economic Botanist and his research assistants are engaged in this work in Bengal.

As a result of 20 years' researches in this direction no less than twenty-four different strains of improved pedigree belonging to the Highland Aus and Transplanted Aman paddy groups, suitable to different climate and other environmental conditions of the different districts of the province, have been evolved.

Detailed description of these paddies will be available from the Economic Botanist, Bengal, Dacca Farm, or from the local District Agricultural Officers.

N.B.—The word "blood" in paragraph (1), page 3, of this article has been used in ordinary sense to make the matter more easily intelligible to an ordinary man.

Reply statement by the Indian Chamber of Commerce, Calcutta, to the questionnaires issued by the Bengal Rice and Paddy Enquiry Committee.

Q. 3.—The accurate statistics of the outturn of area under paddy and the demand for paddy and rice would be welcome if the cost is not prohibitive.

Q. 5.—We do not consider it is possible to obtain these statistics in a fairly accurate manner; nor do we consider Legislation to be necessary for the purpose.

Q. 6.—In the absence of any reliable statistics of consumption, it is very difficult to say whether Bengal produces less paddy and rice than she would require annually. Whereas Bengal exports rice to other provinces of India and also to other countries, the province also imports from Burma, Orissa and to a certain extent from Bihar. There, however, seems to be no doubt that the consumption could be increased considerably considering the large population of the province.

Q. 8.—Rice being the staple food of Bengal, in the case of those cultivators who only produce paddy there is obviously no correlation between rice and other agricultural staples. However, as jute is the second important crop in point of quality, the prices of jute do affect prices of paddy sometimes.

Q. 9 and 10.—Yes, the prices of paddy and rice have declined since 1934 to a lower level. This decline has partly been due to dumping of Burmese rice and partly to the all-round fall in the prices of commodities throughout the world.

Q. 11.—Improvement in prices could be effected by improvement in quality.

Q. 12 (a).—The fall in prices has not been due to any disproportionate increase in supply.

Q. 12 (b).—There has been no appreciable increase in foreign supplies.

Q. 12 (c).—As there has been no appreciable increase in foreign imports, naturally, this factor has not affected local prices.

Q. 14.—The export duty has had no appreciable effect on the prices of paddy or on the foreign demand for this commodity.

Q. 16.—In the absence of any definite information about the actual cost of production, it is not possible to state as to what would be a fair profit to the cultivator.

Q. 18.—Yes, better seeds, manuring, etc., will yield better outturn.

Q. 19.—The Committee think that it is not practically possible to fix minimum prices for paddy rice.

Q. 36.—Patna rice is exported from Calcutta to Bombay and Karachi. Inferior grades whenever cheaper than Burma rice are also exported to the Malabar Coast. At the same time Bengal also imports Stasal as well as other coarse grades from Orissa. There is no fixed standard for the qualities of rice produced in Bengal. The standard changes every year and each merchant has got his own standard.

Q. 37 (c).—The export charges from Burma and Calcutta ports do not vary much and might be taken to be practically on the same basis.

Q. 38.—No.

From—The Honorary Secretary, Marwari Chamber of Commerce, Calcutta,

To—The Secretary, Bengal Paddy and Rice Enquiry Committee, Legislative Building, Calcutta.

With reference to your letter No. 160-435, dated the 27th September 1938, forwarding a copy of the questionnaire drawn up by the Bengal Paddy and Rice Enquiry Committee with a request to give a reply statement on the same, I am directed to state as under.

The Chamber Committee have been very pleased to learn that the local Government have appointed a Committee to inquire into the problems of Paddy and Rice as they affect the Province of Bengal and would like to answer some of the questionnaire.

The Committee do not propose to answer the first two questions. With regard to the question No. 3, they would submit that the accurate statistics of the outturn of and area under paddy and the demand for paddy and rice would be welcome if the cost is not prohibitive.

The Chamber would not answer the 4th question and with regard to question No. 5 it does not consider that it is possible to obtain fairly accurate statistics of stock of paddy and rice in hand in any particular year. The Chamber does not consider that legislation is necessary for the purpose.

Q. 6.—In the absence of any reliable statistics of consumption it is very difficult to say whether Bengal produces less paddy and rice than she would require annually. Although Bengal exports rice to other provinces of India and also to other countries, the province also imports from Burma, Orissa and to a certain extent Bihar. The Chamber Committee believe that having regard to the large population of the province, consumption could be increased considerably.

Q. 7.—The Chamber would not answer the question.

Q. 8.—Rice being the staple food of Bengal, in the case of those cultivators who only produce paddy, there is obviously no correlation between rice and other agricultural produce. But the prices of jute do affect the prices of paddy sometimes in view of the fact that jute is the second important crop so far as the quantity is concerned.

Q. 9 and 10.—Yes. The prices of paddy and rice have been steadily falling since 1934. This decline has partly been due to dumping of Burmese rice and partly to the all-round fall in the prices of commodities throughout the world.

Q. 11.—Improvement in prices could be effected by improvement in quality.

Q. 12.—(a) The fall in prices has not been due to any disproportionate increase in supply.

(b) There has been no appreciable increase in foreign imports, this factor has not affected local prices.

*Q. 13.—*The Chamber does not propose to answer it.

*Q. 14.—*The export duty has had no appreciable effect on the prices of paddy or on the foreign demand for this commodity.

*Q. 15.—*The Chamber would not answer it.

*Q. 16.—*In the absence of any definite information about the actual cost of production, it is not possible to state as to what would be a fair profit to the cultivator.

*Q. 17.—*The Chamber would not answer it.

*Q. 18.—*A better outturn could be obtained by more improved method of cultivation. Better seeds, manuring, etc., will yield better outturn.

*Q. 19.—*The Committee think that it is not practically possible to fix minimum prices for paddy and rice. The Committee do not propose to answer the questions Nos. 20-35.

*Q. 36.—*Patna rice is exported from Calcutta to Bombay and Karachi. Inferior grades whenever cheaper than Burma rice are also exported to the Malabar Coast. At the same time Bengal also imports Stasal as well as other coarse grades from Orissa. There is no fixed standard for the qualities of rice produced in Bengal. The standard charges every year and each merchant has got his own standard.

Q. 37.—(c) The export charges from Burma and Calcutta ports do not vary much and might be taken to be practically on the same basis.

*Q. 38.—*No.

Replies by the Bengal National Chamber of Commerce to the questionnaire issued by the Paddy and Rice Enquiry Committee.

Answer to Q. 1.—(a) No.

(b) That the methods are defective is evident from the unsatisfactory results obtained. The Government have not at present any special arrangements for estimating the annual outturn of paddy nor do they spend any amount specially for the compilation of paddy forecast. So far as acreage is concerned, forecasts are generally the mere guess work of village chaukidars or clerks of union boards, while in regard to the yield, sufficient number of the representative plots are not taken into account. All these factors are responsible for the present defective forecasts.

(c) and *(d)* The Committee of the Chamber feel that it will not be possible for the Government to compile fairly accurate statistics of supply through the existing administrative machinery unless some extra expenditure is incurred for the purpose. It may, for example, be suggested that every thana may be made a unit under two Settlement Amins and two Agricultural Inspectors competent to decide the representative character of soil and their yield. This, however, involves some additional expenditure, though it is not necessary that such comprehensive survey should be carried out every year; it will be sufficient if this survey is done every ten years.

The Committee would like, in this connexion, to make an alternative suggestion for compiling accurate forecasts of outturn. All zemindars both private, and Government (in the case of khas mahal lands) may be requested to furnish actual figures of acreage under rice within their respective jurisdiction. Zemindars have also their *khamar* land (i.e., land under their own cultivation) almost of all characters of soil, and if the additional cost (which is not likely to be large) be borne by the Government, they may as well be asked to furnish yield per acre.

(e) It is extremely problematic if random sampling would yield satisfactory results. For, unlike in Canada and the United States of America, holdings in India, and particularly in Bengal, are considerably small in size and large in number, while there are too many varieties of soil yielding too many varieties of crops.

Answer to Q. 2.—(a) No; in the case of paddy and rice, particularly, considerable traffic is carried in boats, lorries and carts.

(b) If fairly accurate statistics were available, it would have been possible to find out which districts have a surplus production and which are in deficit.

Answer to Q. 3.—(a) Yes.

(b) As regards the compilation of the statistics of the outturn of and area under paddy, the answer has already been furnished in reply to Q. 1 (c) and (d). But it may not, for reasons stated in reply to Q. 2 (a), be possible to compile statistics of the effective demand for paddy and rice district by district. A rough idea may, however, be obtained if the *per capita* consumption is taken, though the Committee are not sure whether it would be possible to obtain such statistics.

(i) and (ii) As regards the nature of organisation necessary for the purpose and the costs involved, the Committee would suggest the utilisation of the elaborate Census Organisation of the Government of India. There is no harm if the statistics are collected every ten years.

Answer to Q. 4.—(a) No; the statistics may be considered only to be approximately correct. There is a huge boat traffic from some of the eastern districts of Bengal to Assam which is a deficit province, while considerable quantities of paddy and rice are imported into Bengal from Orissa by boats. These figures are not available and to that extent vitiates the statistics of imports and exports.

(b) No; it is not possible to obtain accurate statistics on this point.

Answer to Q. 5.—(a) and (b) It is possible to get statistics from the stocks held by aratdars, village mahajans, jotdars, and big cultivators at the beginning of the new crop, though the Committee do not feel very sure whether it would be possible to obtain accurate information from the smaller cultivators.

(c) No.

Answer to Q. 6.—(a) Yes. It appears from "Estimates of Area and Yield of Principal Crops in India" (39th Issue) that the average production of rice in Bengal during the quinquennium 1932-33 to 1936-37 was 88.38 lakhs of tons while the total requirements of rice have been estimated by the Chamber at about 104 lakhs of tons (*vide* Appendix I).

(b) Out of the total production of rice about 3½ lakhs of tons are exported from Bengal, either to foreign countries or to other provinces.

while about 6 lakhs of tons are imported on an average into the province from abroad. It would thus appear that the net available supply in Bengal is about 90 lakhs of tons. Which again would lead to the conclusion that a deficit to the extent of about 14 lakhs of tons is not met and that a considerable portion of the population is under-fed.

(c) Yes. There is, in the opinion of the Chamber, much scope for an increase in the local productions by resort to improved methods of cultivation on a scientific basis. But unless there is time supply of water by irrigation and drainage of excess water, there is no prospect of obtaining much higher yield. It is, therefore, that the Government should take necessary steps for the purpose.

Answer to Q. 7.—(a) Yes; every year, generally.

(b) The price of three maunds of paddy is generally equal to two maunds of rice, exclusive of the cost of hauling.

(c) Yes; the low price of imported Burmese rice has invariably an adverse effect both on the price of paddy and rice.

Answer to Q. 8.—Yes. There is a correlation between the price of rice and that of wheat, in so far as when the price of wheat is abnormally low, it acts as a drag on that of rice. On the other hand, a high price of jute leads to an increase in the *per capita* consumption, and this, together with an increase in the holding power of these paddy cultivators who also produce jute, results in a rise in the price of rice.

Answer to Q. 9.—(a) No; the prices of paddy and rice have not steadily fallen since 1934.

(b) The prices reached record low level in March 1934; then they began to go up and reached highest level in March 1936. The prices again came down and reached the lowest mark in March last year, almost on the same level as in 1934 (*vide* Appendix III).

(c) The following factors may be said to have effected the fall in prices during the last few years:—

- (i) low economic condition of the mass of the people,
- (ii) lack of holding capacity of the cultivators,
- (iii) restriction of export markets in quality rice, and
- (iv) dumping of Burmese rice.

These are more or less self-explanatory, but a few observations on the last named factor may be made in this connection. Experience has shown that Burma has exported her rice to Bengal on every occasion when her other overseas markets have shrunk, and in order to dispose of her surplus stocks she has been selling rice at an uneconomic price. In this circumstance, the quantity actually imported from Burma is of comparatively less importance, and the low price at which Burmese rice sells at Calcutta coupled with the fact that unlimited quantity may be imported from Burma if there is sufficient rise in price of rice in the Calcutta market often acts as a deterrent to any rise in the price. As a matter of fact the price in the Calcutta market has always moved sympathetically with the price of rice in the Rangoon market and the low price at which Rangoon rice is being sold in Calcutta and the possibility of an unlimited import may be said to have brought about a fall in the price of rice during the last few years.

Answer to Q. 10.—(a) and (b) Does not arise.

(c) Vide Answer to Q. 9(c).

Answer to Q. 11.—(a) While restriction of export markets may be considered to be a factor of an international character, it is a question which should be taken up by the Government of India through negotiations for trade treaties with foreign countries. Mention may be made of the Trade Agreement which the Government of India have entered into with Japan and the one which at present they are negotiating with the British Government. It is unfortunate that no provision has been made in regard to the export of Indian rice to Japan in the Indo-Japanese Trade Agreement, while the Chamber is not aware of any steps taken for obtaining more favourable terms for the export of rice in connection with the renewal of the Indo-British Trade Agreement. In regard to the question of preventing the dumping of Burmese rice into Bengal it appears that "India and Burma (Trade Regulation) Order" of 1937 which regulates the existing trade relations between India and Burma provides for a free import and export of commodities to and from the two countries, and that it is not possible under the existing circumstances to take any steps to restrict the import of rice from Burma into India. Attention may, however, be drawn to the fact that this Order will not expire before the end of the financial year 1939-40 but may be terminated at that date if a notice to that effect is served by the Government of India on the Government of Burma before the end of the current financial year, i.e., 1938-39. In the opinion of the Chamber opportunity should be taken by the Government of India of this provision of the Trade Regulation Order and a notice of denunciation should be served sufficiently in time and negotiations for a fresh trade agreement between the two countries should be started simultaneously. This new Trade Agreement should provide for the imposition of a customs duty on rice, paddy and broken rice imported from Burma with a view to protect the main agricultural industry of the province, and to stop the dumping of Burmese rice into India at an uneconomic price.

The other factors, namely, those relating to the low economic condition of the mass of the people and the holding capacity of the cultivators are more or less amenable to the control of the Provincial Government.

(b) Of the various factors which have accounted for the fall in the price of paddy and rice in recent years, by far the most important one, exercising tremendous influence on the movement of price, has been the dumping of Burmese rice into the Bengal market.

Answer to Q. 12.—(a) No. It appears from the following figures that during the years 1932-33 to 1935-36 the volume of production was actually on the down grade though as a consequence of the jute restriction propaganda there was a substantial rise in production in 1936-37:—

Year.	In thousand tons.
1932-33	... 9,364
1933-34	... 8,680
1934-35	... 8,273
1935-36	... 7,208
1936-37	... 10,668
Average for five years	... 8,838

So far as India as a whole is concerned, the following table taken from the "Review of the Trade of India" in 1937-38 would confirm the statement made above.

Production of rice in India (excluding Burma).

Years.	Tons (000).
1932-33	... 26,201
1933-34	... 25,733
1934-35	... 25,706
1935-36	... 23,213
1936-37	... 27,828
1937-38	... 26,607

(b) Imports have no doubt increased, with a few exceptions as will be evident from the following table:—

	(In 000 tons.)
1932-33	... 936
1933-34	... 1,628
1934-35	... 1,978
1935-36	... 1,573
1936-37	... 1,534
1937-38	... 1,267

The average annual imports from Burma into India during the quinquennium 1922-26 were 726,000 tons; they rose to 1,136,000 tons in the quinquennium 1927-31 and to 1,690,000 tons in 1933-37 (*vide* Review of Trade, page 23).

It will thus appear that import from Burma varies from time to time. It depends partly on the shortage of crops in Bengal or in other provinces and partly on the fall of demand of overseas market of the exporting countries. As a matter of fact whenever Burma had a good foreign demand offering better prices, she did not care to dump Indian market.

(c) (i) and (ii) There is no necessary correlation between the fall in prices and increase in imports. It is not the actual volume of imports that has depressed the local market but the possibility of an unlimited import which has exerted a bearish influence on the price of rice. Burma is the most important country from which rice is imported into Bengal.

Answer to Q. 13.—There is no reason why there should be a shrinkage in the local demand for rice, while regards foreign demand mention has already been made of the restriction of export markets.

Answer to Q. 14.—(a) No.

(b) and (c) Yes; the price of paddy paid to cultivators has ultimately been affected by the export duty.

Answer to Q. 15.—(a) Not available.

(b) and (c) Rs. 10 per bigha yielding 6 maunds of paddy; the cost per maund is therefore Re. 1-10.

In calculating the cost of production, the following items have been taken into account:—

Cost of (i) cultivation, (ii) transplantation, (iii) weeding, (iv) harvesting, (v) carrying and (vi) threshing. Besides, the rent of land and cost of seed are also included.

Answer to Q. 16.—The question of profit does not arise under the existing circumstances. For, the cultivator does not even get an economic price for his crop. The holdings are very small, the average holding *per capita* being only half an acre, and the yield per bigha being too meagre. More important than the question of profit is that of ensuring an economic price which may be estimated at at least Rs. 2-8 per maund.

Answer to Q. 17.—This question presupposes that at present cultivators do obtain some profit, which, however, as mentioned in answer to the previous question, is not a fact. The income of cultivators may be increased if there is a rise in price at present paid for their crops.

Answer to Q. 18.—Subject to the observations made below there is great scope for improving the yield if cultivators can be persuaded to introduce scientific methods of cultivation and to use better seeds and manures. For this purpose it is not only necessary that they should be given financial assistance but also that they should be convinced by actual demonstration of better results being obtained by new methods of cultivation.

It should, however, be pointed out that a better outturn may be obtained by more improved methods of cultivation, if only there is adequate provision of water by irrigation in West, North and Central Bengal.

Answer to Q. 19.—(a) In view of the fact that cultivators do not obtain even an economic price for their crop, it is certainly advisable to the minimum price for paddy.

(b) If minimum price is to be fixed, it should be based on the remunerative price of the worst quality of paddy. If the minimum price is fixed for the worst quality of paddy, the prices for better qualities would automatically adjust themselves.

(c) Temporarily for three years.

Answer to Q. 20.—If minimum price has to be fixed, the following essential conditions must be fulfilled:—

- (a) Imposition of adequate protective duty on import of rice from foreign countries.
- (b) Provision of facilities for storing paddy and of financial accommodation against goods.
- (c) Inter-provincial co-operation must be secured and the Government of India should be persuaded to fix the minimum price.

Answer to Q. 21.—By legislation.

Answer to Q. 22.—Licensed warehouses or aratdars should buy off paddy from cultivators at or above the minimum price according to the condition of the market, and then sell the crop to the wholesale merchants or to consumers direct. These licensed warehouses or aratdars should further be required to store the crop on behalf of the cultivators, advance money against stock, sell the crop and then pay off the balance of money realised to the respective cultivators.

The transactions of these licensed warehouses or aratdars should, in either case, be subject to audit by the Government in order to check malpractices in regard to price, weightment and quality.

Answer to Q. 23.—Small expenditure will be necessary for maintaining a staff of Inspectors and Auditors to supervise the work of the licensed warehouses, and to ensure that the minimum price is enforced. The expenses can be met from a small license fee to be paid by the licensed warehouses and aratdars who will have to work on a fixed commission.

Answer to Q. 24.—The difference between the price paid to the cultivator and that paid by the miller varies from anna 1 to annas 2.

Answer to Q. 25.—Yes, if middlemen could be excluded.

Answer to Q. 26.—(a) Very little; about 5 per cent.

(b) Yes, the price obtained by the cultivator is naturally affected to the extent it is pledged before harvest.

Answer to Q. 27.—The existing differences between the standards of weight and measures do not affect the price very much, as adjustments are generally made in all cases between the prices and these standards.

Answer to Q. 28.—(a) Producing cultivators sell their crop through beparis, aratdars and millers.

(b) Yes.

(c) Does not arise.

Answer to Q. 29.—There are allowances both in cash and kind which cultivators have to give to the purchasers. These allowances are of two kinds: *Dhulta* in kind from the total weight of the crop sold, and *Kharcha* in cash from the total money received in payment of the price of the crop.

Answer to Q. 30.—(a) Yes, it is necessary to introduce uniform weights and measures. The weight should be 80 tolas to a seer and 40 seers to a maund.

(b) As mentioned in reply to Q. 27, local prices in many places are more or less adjusted to the local standards of weights and measures. Any fresh adjustment of these local prices to a uniform standard established for the whole province, may, therefore, take considerable time to be achieved. If in this circumstance newly established uniform standard is enforced immediately throughout the province, the result would be great hardship to a large number of persons who are now accustomed to the existing system of different standards for different localities. It will, therefore, be necessary in the interest both of agriculturists and of traders to apply the provisions of any enactment regarding uniform standards of weights and measures to the different parts of the province at such intervals, as would cause the least dislocation in the business.

Answer to Q. 31.—(a) Paddy and rice are at present graded by custom according to quality.

(b) Standardisation of grades is not necessary, nor is it practicable in view of a very large number of varieties of paddy grown in the province.

(c) Does not arise.

(d) Does not arise.

Answer to Q. 32.—(a) Yes.

(b) The difference between the wholesale price of paddy and rice and the price obtained by the cultivators is measured by the cost of transport and the commission charges; these latter charges, as mentioned in answer to Q. 24, vary from anna 1 to annas 2.

(c) The producing cultivators are generally kept well-informed about the price movements in the wholesale market by the beparis and other purchasing agents who, under the existing marketing system, often go to the houses of the producers for buying their requirements. Even those producers who come to market places for disposing of their crops get an idea of the price movements from the beparis.

(b) Does not arise.

Answer to Q. 33.—(a) There are undoubtedly considerable advantages of regulated markets. But the Committee would point out at the same time that the cultivators even now enjoy most of these advantages, even in the absence of regulated markets. Attention is drawn in this connection to the answers given in reply to Q. 32 (c). Besides, at present cultivators often sell their crops right at their door and have not to worry for the transport of the same. If, however, regulated markets are set up, they will have to carry their crop to the market place, and thus incur unnecessary expenditure. The Committee are not opposed to the establishment of regulated markets, but they would suggest that in deciding this matter due consideration should be given to these aspects of the question.

(b) The area over which particular markets should operate would depend on the convenience of growers in regard to the transport of the crop.

(c) The sites should be selected by the District Magistrate in consultation with local traders. Every attempt should be made to maintain the existing sites.

(d) The marketing committees should be constituted on a representative basis, equal representation being given to growers and traders.

(e) The markets should be financed by levy of a cess on growers.

(f) Yes, such markets will naturally attract buyers and sellers. It is not necessary to prohibit dealings outside such markets.

Answer to Q. 34.—The existing system of marketing is quite good and no improvement is necessary except provisions of financial help at the time of depression.

Co-operative societies have failed because they have been run by people who are not cultivators and are not experienced traders. Besides, their success would partly depend on an extensive network, which, however, will not be economical because of the small margin of profit and the top-heavy administration, and also because huge capital expenditure is necessary for handling the entire paddy crop.

Answer to Q. 35.—Yes, the existing means of communication are very bad and hampers marketing to a great extent.

(b) The charges for conveyance are excessive as compared with charges in other countries (particularly Burma), except in the case of boat traffic.

Percentage of transport charges to the wholesale price varies from 10 per cent. to 50 per cent. according to the distance and convenience of communication.

Answer to Q. 36.—(a) Among the principal grades and varieties of rice exported, the most important is the *Patnai*. Imported rice mostly consists of coarse quality (*mota*).

(b) Generally the custom is selling by sample, payment cash against delivery ex-godown.

(c) White *Patnai* rice has fixed standards, viz., Seeta No. 1, Seeta No. 2, Seeta No. 3.

Standards are fixed by exporters and do not vary.

(d) Nothing much can be suggested.

Answer to Q. 37.—(a) Yes.

(b) and (c) Absence of competition in shipping in the Inland ports is the cause of high freight charges.

In Siam Indo-China, however, the existence of a number of shipping companies makes it possible for comparatively cheaper charges being offered to exporters for the transport of their goods to foreign countries.

Answer to Q. 38.—(a) (i) Yes.

(ii) Yes.

(b) This organisation should be constituted on a representative basis.

(c) It should be empowered *inter alia* to recommend measures that should be adopted for the expansion of India's export trade in rice by negotiation of trade agreements with other countries.

Appendix I.

**Total Production of rice in Bengal.*

			Area (in thousand acres).	Yield (in thousand tons).
1932-33	..	..	21,779	9,364
1933-34	..	..	21,672	8,680
1934-35	..	..	20,740	8,273
1935-36	..	..	21,092	7,208
1936-37	..	..	21,993	10,668
Average of five years	..	..	..	8,838

**From Estimates of Area and Yield of Principal Crops in India, 39th Issue.*

*Estimate of Annual Requirement of Rice.***A. Estimate of rice eating population—****A Estimate of Rice Eating Population—**

I. Total population according to 1931 Census	..	5,10,87,338
II. Total population minus persons up to age 15	..	3,02,66,597
III. Children between ages 0-5	.. ..	79,42,556
Equivalent to	.. ..	19,85,639
(on the assumption that children up to age 2½ do not take rice and those above consume individually an amount equal to one-half of what is normally consumed by an adult).		
IV. Children between ages 5-15	.. ..	1,28,78,185
Equivalent to	.. ..	96,58,639
(assuming that an average child between the ages 5-15 takes three-fourths of what an adult consumes).		
V. Widows (above 15 years)	.. ..	42,53,045
Equivalent to	.. ..	21,26,522
(assuming that widows take rice only once a day).		
VI. Persons who possibly consume rice only once daily such as those who belong to communities other than Bengalis, Assamese, Oriyas and Madrasese	..	31,22,863
Equivalent to	.. ..	15,61,431
(taking half number for reason stated).		
Total rice eating population— II + III + IV – (V + VI) –		
	3,02,66,597	21,26,522
	19,85,639	15,61,431
	96,58,639	
	<u>4,19,10,875</u>	<u>36,87,953</u>
	4,19,10,875	
	<u>36,87,953</u>	
	3,82,22,922	(Total in terms of adults.)

B. Annual consumption of rice of 3,82,22,922 adults at the rate of 7 maunds per adult being the provision made per head under the Jail Code—

=26·76 lakhs of mds.

=98·30 lakhs of tons.

C. Seed requirement for an average area of 21½ million acres at 25 lbs. per acre—

=2·40 lakhs of tons.

D. Total requirement for consumption and seed—

Lakhs of tons.

Consumption	..	98·30
Seed	..	<u>2·40</u>
Total	..	<u>100·70</u>

E. Making allowance for about 3 per cent. increase in population between 1931 and 1938 an extra amount of 2·95 lakhs of tons according to per capita consumption will have to be added to the above total to provide the estimate of the present requirement which would be as follows—

Lakhs of tons.

100·70

2·95

103·65

i.e., about 104 lakhs of tons.

Appendix II.

Harvest price of Paddy and Rice since 1934.

		Patnai.	Kalma.	Mota.
		Rs. a.	Rs. a.	Rs. a.
1934	.. Paddy	.. 1 12	1 10	1 6
	Rice	.. 3 2	3 0	2 12
1935	.. Paddy	.. 2 4	2 2	1 12
	Rice	.. 3 12	3 10	3 2
1936	.. Paddy	.. 2 8	2 4	2 0
	Rice	.. 4 2	3 14	3 6
1937	.. Paddy	.. 2 0	1 12	1 8
	Rice	.. 3 6	3 2	2 12
1938	.. Paddy	.. 1 12	1 10	1 6
	Rice	.. 3 2	3 0	2 10

Note by Messrs. Imperial Chemical Industries (India), Ltd., on questionnaire from the Bengal Paddy and Rice Enquiry Committee.

Section 15.—(a) The average yields of paddy in maunds of 82·3 lbs. per acre in the following districts are:—

			Aman Paddy.	Aus Paddy.
Burdwan, W. Bengal	..	..	22	..
Birbhum, W. Bengal	..	..	16	..
Mymensingh, E. Bengal	..	..	15·18	12·14
Rangpur, N. Bengal	..	..	20	15
Rogra	..	..	20	15
Chittagong	..	..	..	10

(b) Cost of cultivation per acre (Aman Paddy)—

East Bengal—Mymensingh—

Rs. 7 if family labour is employed.

Rs. 20 if hired labour is employed.

West Bengal—Burdwan and Bankura—

Rs. 12-8 if part family labour is employed.

Rs. 30 if all hired labour is employed.

(c) Method of calculation of above costs—

East Bengal.—The majority of cultivators in Mymensingh district cultivate a holding of about one acre and they till their lands themselves and do not employ outside labour. In cost accounting this crop, therefore, it is difficult to work out a complete account giving details, as in actual practice the only expenses incurred are rent, seed, sundries and depreciation on implements and live-stock.

Rent on the whole are high and vary from Rs. 5 to Rs. 15 per acre. If an average is taken of Rs. 10, this may be divided between two crops taken during the year and the figure against Aman paddy, therefore, will be Rs. 5. Seed is not generally bought but, when it is, costs about Rs. 2 to Rs. 2-8 for 70 lbs. which is used to be Re. 1 per acre.

The total cost incurred—Rs. 6 to Rs. 7 per acre taking an average outturn of 15 maunds paddy selling at Rs. 2 per maund—Rs. 30 per acre.

Net profit—Rs. 23 to Rs. 24 per acre.

The value of straw has been cancelled out against maintenance of bullocks and the value of F.Y.M. produced.

Cost account.—In the few cases where hired labour is employed the following applies for this district:—

(1 man—As. 4 per day.)

	Per acre.
	Rs. a.
Rent	5 0
3 Ploughings and ladderings at Re. 1-4	3 12
Pulling seedlings, binding and carrying—4 men ..	1 0
Transplanting—8 men	2 0
Weeding 2—8 men	2 0
Harvesting—	Rs. a.
Cutting—6 men	1 8
Tying—3 men	0 12
Carrying—3 men	0 12
	3 0
Threshing (by bullocks) and winnowing, 4 men for 2 days	2 0
Marketing	1 0
Value of 17 mds. paddy at Re. 1-12 per maund	19 12
	29 12
Net profit	10 0

West Bengal—Burdwan and Bankura districts—

(a) *Tank irrigated and rainfed areas.*—Here again the majority of cultivators work their own land, although the proportion who employ labour is greater than in Mymensingh. Usually additional women are employed at transplanting, weeding and harvesting. They are each paid the equivalent of as. 4 per day, as. 1-6 in the form of food and as. 2-6 cash. The actual charges are therefore:—

			Rs. a.
Transplanting—15 women at as. 2½	..	..	2 6
Weedings, 2—12 women at as. 2½	..	..	1 14
Cutting and binding—5 women at as. 2½	..	..	0 12
Rent	..	..	6 0
Depreciation and marketing	..	..	1 8
			<hr/> 12 8
Value of 22 mds. grain at Re. 1-12 per maund	..	..	38 8
			<hr/> 26 0
Net profit	..	..

(b) *Canal irrigated areas.*—Here yields up to 30 maunds grain per acre are obtained from the use of irrigation water and oilcake or sulphate of ammonia. Water tax on an average is Rs. 4-8 per acre and the cost of 3 maunds mustard cake is Rs. 5-8 or 1 maund sulphate of ammonia is Rs. 4-12. On an average, therefore, the additional cost of cultivation is Rs. 9-8 per acre.

			Rs. a.
The value of 30 mds. grain at Re. 1-12 per maund	..	..	52 8
Cost of cultivation	..	..	22 0
			<hr/> 30 8

where all hired labour is employed the following costs are representative of conditions in this area:—

				Rs. a.
4 Ploughing—6 men	..	..	..	2 4
2 laddering—2 men	..	..	..	0 12
Seedbed	..	..	..	1 0
Transplanting—15 women at as. 2½	..	..	..	2 6
1 maund sulphate of Ammonia	..	..	..	4 12
Weedings 2—12 women	..	..	..	1 14
Cutting and binding—4 men and 8 women	..	..	..	2 12
Threshing—6 men	..	..	..	2 4
Rent	..	..	..	6 0
Water tax	..	..	..	4 8
Depreciation and marketing	..	..	..	1 8
				<hr/> 30 0
Value of 30 mds. grain at Re. 1-12 per maund	..	..	..	52 8
				<hr/> 22 8
Net profit	..	..	..

In all the above examples the value of the straw has been cancelled out against the maintenance of the bullocks and the value of the F.Y.M. obtained.

16. *Fair average profit per acre.*—Rs. 25 to Rs. 30 using family labour.

Economic price for Aman paddy.—Rs. 2 per maund (40 seers).

Economic price for Aus paddy.—Rs. 1-12 per maund (40 seers).

17. By a co-operative system of selling whereby the cultivator's crop would be held until prices were favourable, his profit could be improved. A similar scheme of co-operative credit for advancing him money would also help him, since at present has to sell his grain immediately after harvest at whatever price he can realise in order to repay loans.

18. Improved methods of tillage and the growing of better strains of seed have been shown on Government Farms to give better outturns of grain. The application to the usual dressings of cattle manure has also been shown to be very profitable. This practice is being widely adopted in many parts of Bengal, where reliable experiments have shown that addressing of 120 lbs. sulphate of ammonia per acre applied at transplanting will, on an average, increase the yield per acre of grain by 6·54 maunds and of straw by 15·28 maunds. At their current value at harvest of Rs. 1-10 per maund for grain and as. 3 for straw, the above dressing costing Rs. 7-2 gives an increase yield worth Rs. 13-8, i.e., a *nett* profit of Rs. 6-6 per acre. This represents a return on fertilizer expenditure of 89 per cent. Assuming the value of straw to remain unaltered at as. 3 per maund, for 100 per cent. return on fertilizer expenditure the price of grain must not fall below Rs. 1-12 per maund, and for 50 per cent. return Rs. 1-3. The use of artificial fertilizers, therefore, is evidently likely to improve the cultivator's profit in most seasons.

19. We do not consider it practicable to fix a minimum price for paddy.

Note by the Calcutta Grain Oilseed and Rice Association on questionnaire from the Bengal Paddy and Rice Enquiry Committee.

4. (1) It is difficult to say; the Association has no means of verifying them.

4. (2) Does not arise.

5. (a) Yes.

5. (b) Stock figures might be obtained in the same way as are estimates of yield, weather and condition reports, and from the same official sources.

6. (a) Bengal produces enough to cover her normal annual needs but not enough to safeguard against possible crop failures, or even extensive damage from floods, etc., in particular districts when misery and desolation, indeed famine conditions inevitably follow.

6. (b) By increasing the production until an adequate reserve is created to meet the foregoing everpresent contingency. Once this reserve is secured (and suitably stored) a return to "normal" production would be desirable.

6. (c) Yes, see answer to (b).

7. (a) Yes.

(b) Paddy prices constitute one important factor broadly affecting rice prices, and *vice versa*. Another is the volume of supply and demand

existing in for each at any particular period and in consequence diametrically opposite movements not infrequently occur.

7. (c) Yes, see answer to (b).

8. No.

9. (a) No.

9. (b) Widely. There are no standards generally accepted as precise; Sir Daniel Hamilton's estate at Gosaba might be requested to be good enough to furnish paddy rates for the year under reference.

9. (c) Good crops in India and Burma; a comparatively low level of other commodity prices.

12. (b) These queries do not arise, in view of the answer to 9(a) that has been no steady fall.

14. (a) Yes.

(b) Yes, in the districts adjacent to Calcutta.

(c) The incidence is borne by both buyer and seller, though perhaps principally by the former.

19. (a) No; for it appears that the bulk of the rice produced and sold in Bengal is eaten by her cultivators, and to fix minimum prices would adversely affect them.

19. (b) and (c) Do not arise.

31. (a) There is no uniform system.

(b) Yes, if it were practicable.

(c) By comparison with carefully selected grades. The "eye" test seems to be the simplest. Disputes might be settled by local committees experienced in the commodity.

32. (a) Yes, they affect the cultivators serving this market.

(b) To some extent high prices induce a larger supply and *vice versa*.

32. (c) Does not arise.

33. (a) No.

(b) to (f) Do not arise.

35. (a) Probably not.

(b) The Association has no data, but it might be mentioned that in the case of despatches to Calcutta the cost of transport varies approximately from 2 per cent. to 10 per cent.

36. (a) Inter-provincial trading extends to numerous varieties bearing purely local terms. The qualities principally imported into Bengal from Burma include small and large mills, spls, long-boiled meedong and kananghtoe.

36(b) These seem hardly capable of specification, for they vary considerably in accordance with the local conditions, trade conditions, trade customs and the different stipulations of individual traders.

36. (c) Yes. Individual shippers. Yes, somewhat.

37. (a) to (c) The Association has no data.

38. (a) No.

Reply submitted by the Chittagong Chamber of Commerce, to the questionnaire on paddy and rice.

Statistics of supply, demand and stocks.

1. (a) Yes, the estimates of annual outturn of paddy on the basis of acreage under the crop and yield per acre are found to be reasonably accurate.

1. (b) to (d) Does not arise.

1. (e) No.

2. (a) No: impracticable. See 3(a) (2).

(b) Does not arise.

3. (a) (1) Yes.

(2) No, because supply and demand are evened by innumerable movements of paddy by boat, cart and rail across long district boundaries.

3. (b) (i) and (ii) Do not arise.

4. (1) We are not familiar with statistics of imports and exports of paddy to and from this province from and to other provinces without Burma.

4. (2) We do not think it feasible to obtain accurate statistics. The insuperable difficulty in compiling any such statistics is the impossibility of obtaining accurate figures for the very large country boat traffic.

5. (a) No: stocks of paddy and rice are distributed over too wide an area and in too small individual quantities.

5. (b) and (c) Do not arise.

6. (a) and (b) If Bengal, Assam, Bihar and Orissa are taken as one economic unit there is probably no deficit as great a quantity is believed to be exported in normal year as is imported. Wherever jute is grown there tends to be a shortage of paddy which requires to be made up from such area as are confined to the cultivation of paddy.

Does not arise.

6. (c) Does not arise.

7. (a) The correlation between prices of paddy and rice appears to be fairly constant both from year to year and over a series of years.

7. (b) 3 paddy to 2 rice.

7. (c) Prices are governed by supply and demand in Bengal and not by Burma prices: export rice from Bengal goes out from the Aus crop before the new Burma crop is ready. Export "Patna rice is a speciality and should not be regarded as a factor."

8. There is no constant correlation between the prices of paddy and jute which is the main Bengal staple. It is thought, however, that the price of rice in the big markets is governed to some extent by that of wheat for which it is a substitute in the manufacture of starch and certain grain foods such as biscuits.

9. (a) No, a fall occurred between 1929-32.

(b) The Aus price from August to October has remained constant at Rs. 2-8 at the beginning of the season going up to Rs. 2-14 towards the end of the season. Prices for the Aman crop from February to April

have remained constant from Rs. 2-8 to Rs. 2-14 thereafter rising to Rs. 3-6 up to July. Reports of floods cause temporary fluctuations. The above prices are per maund for lower grades.

9. (c), 10 (a) to (c), 11 (a) and (b), 12 (a) to (c) and 13. Do not arise.

14. (a) to (c) We have no knowledge but at annas 2 and pies 3 per maund the export duty probably has negligible affect on the price paid to the cultivator.

15. (a) Usually two crops of paddy are produced in a year (1) the Aus, i.e., Bhadai or Autumn crop, and (2) the Aman or Winter crop.

The poorest ground produces 10/12 baskets of paddy per kani per crop and the best land produces up to 60 baskets per kani per crop. Average yield may be put at 30 baskets per kani per crop or 60 baskets per kani for the two crops.

∴ Yield per acre = $52\frac{1}{2}$ mds. paddy.

In many parts with the Aman crop are sown Moong, Hash Kalai or Khesari Dal and 8/10 baskets per kani are received of these products.

15. (b) Assuming a cultivator has an average holding of 16 kanis, the yield of paddy he receives per year is $16 \times 60 = 960$ baskets. He also receives on average about 130 baskets of dhall products.

The number of his family, say 6 people, will do all the work of preparing the ground, sowing and reaping the crop and the only expense that he is put to are as follows:—

	Rs.
Average ground rent at Rs. 2 per kani	... 32
Loss on pair of bullocks purchased at say Rs. 50 and sold at Rs. 30	... 20
Repair, etc., to his implements	... 10
Incidentals	... 10
Total	... 72

N.B.—Grain for sowing, 1 basket (i.e., 14 seers) per kani per crop, or total 32 baskets, is taken from his own stock.

Other expenses—	Rs.
Clothing his family per month at	... 3
Oil and sundries except rice per month at	... 7
Total	... 10

or say Rs. 120 per year.

Rice and Dhall—taking the requirements of the family at 1 seer of rice per head per day, they require 2,190 seers per year and as one basket of paddy produces 9 seers of rice their requirements equal 244 say 250 baskets of paddy per year.

Estimated requirements of dhall products are 25 baskets per year.

16. Normally the cultivators keep out of their own crop their annual requirements of paddy and dhall for food and sell the surplus. Surplus available—

		Paddy.		Dhall.
Yield	..	960 baskets		130 baskets.
Food	.. 250		25	
Seeds for next crop	32		5	
		282 ..		30
		678 ..		100
Proceeds of	678 baskets paddy			Rs.
Proceeds of	100 .. dhall			
	778 baskets at say Rs. 50 per			
		100 baskets	389	
Less expenses as above (Rs. 72 plus Rs. 120)			192	
	Net profit	..	197	

17. The cultivator's profit could be increased by extending the planting of rabi crops.

18. Yes: by the use of tested seed, by manuring and by artificial irrigation.

19. (a) to (c) No.

20, 21 and 22. Do not arise.

23. Government would be forced to guarantee the difference between cost of production and the minimum price should the former rise above the latter which could only be done by increased taxation.

24 and 25. We have no foreign export here.

26. (a) and (b) Very little.

27. The standards and weights and measures here are constant.

28. (a) The producing cultivator sells the surplus paddy which he does not require for food, at the nearest hat, taking it, mostly by water from the hat again only the surplus finds its way to the main markets at Chittagong, Feni, Chaumuhani and Chandpur, though in cases where a very large surplus is available from one estate this may go direct to the larger markets. At Chittagong brokers await the incoming paddy, say outside the river mouth, and accompany it to the merchants, acting in the negotiations for sale for the boatman who may be the producer himself or a relation or associate.

The difference between the price realised by the cultivator and that for retail in the bazars is, taking into consideration freight charges about annas 4 per maund. This is not considered excessive.

The brokers know and visit the sources of supply and the producers and in the latter's interest drive a hard bargain with the merchants: they similarly know from their tours and past experience what standard of paddy can be expected from whom and whence. The merchants in Chittagong, Feni, Chaumuhani and Chandpur hold stocks and profit from the rising price as the season advances, but they are not alone in

this function since cultivators also hold stocks for similar reasons which they appear well able to do except in the case of Cox's Bazar.

In Cox's Bazar the paddy from the Aus and Aman crops has to be evacuated quickly at whatever price can be got because the only mode of transport by water is closed from March to November by bad weather. The cultivators in this area are therefore at a disadvantage which will remain until road communications are provided (*see* reply to No. 35).

It should be noted that the boatmen if not satisfied with prices at one centre proceed to the next and a boatman may go from Chittagong to Chaumuhani and finally to Chandpur before selling.

We think that we should here remark upon the alleged "ignorance" of the cultivator. While he is certainly backward in what is understood by education he is by no means backward when it comes to doing a deal over his paddy. He is fully cognisant by means of bazar talk, and by the visits of brokers, of the trend of prices in the main markets and is able to secure by this knowledge and through competition among merchants and brokers a price in conformity with the general level. It cannot be said in any sense that his ignorance permits him to be imposed upon by the greater knowledge or mercantile ability of merchant or broker.

28. (b) Yes.

(c) Does not arise.

29. There are no such customs or allowances in force locally.

30. (a) Yes, where standards are not uniform.

(b) Does not arise here.

31. (a) There are many grades but five or six are the main ones recognised here.

31. (b) Unnecessary.

(c) Does not arise.

(d) In this area the paddy is normally sorted into grades in the mufassal and disputes are settled between brokers and merchants. It is not considered desirable to set up other machinery either for standardisation or settling disputes.

32. (a) and (b) World prices for grains govern prices to some extent in such large markets as Calcutta and this has eventually an affect on the price obtained by the cultivator for his surplus.

32. (c) and (d) The cultivators appear to be cognisant of these prices and their movements to the extent that this knowledge would be useful to them.

33. With the exception of the Cox's Bazar area which is dealt with elsewhere, we do not think that regulated markets here would secure any advantage to the cultivator over the present system, because, as we have said above the difference between the price received by the cultivator and that by the retailer is reasonable.

34. It is possible that advantages would accrue to any agricultural community through the operation of Co-operative Sale Societies: arrangements for transport and storage could perhaps be cheapened thereby but the net gain over the present system would probably be small. But the first essential of a co-operative movement is that there should be a

need for it and only unsurmountable oppression by "rings" of merchants and brokers would justify co-operative marketing in paddy. So long as brokers do not control the crop and merchants do not control the brokers it is not considered necessary to start co-operative sales societies for paddy. Moreover, the experience of this province with the co-operative movement has been so far from satisfactory that we would not recommend the starting of co-operative sales societies in this area until there is more evidence to show that the agriculturist is co-operative minded.

35. (a) Existing means of communication in the mufassal hamper marketing in this area: there are practically no feeder roads to the railway and road communication can be said to be non-existent. The road system which has lately been recommended by the Special Officer, Road Projects, Bengal, would provide a long-felt want which has undoubtedly handicapped the agriculturists in this area. The larger portion of the paddy will, however, always, move by water and the area is well provided with waterways except in the Cox's Bazar subdivision.

The agriculturist in this subdivision is seriously handicapped: he must evacuate his Aus and Aman crops by sea before the foul weather season starts in March: he can never therefore take advantage of the higher prices prevailing later in the season and when his large surplus has to be thrown on the market within a short period prices obtainable for it are bound to be depressed.

This is a real hardship but it is readily rectifiable and the situation was brought to the notice of the Hon'ble Minister for Communications and Works by a deputation consisting of all the members of the Bengal Legislative Assembly resident in the district early in 1937 with apparently no result. It is essential that road communication be established between Cox's Bazar and the rail head at Dohazari on the Sangu river if the agriculturist in Cox's Bazar is ever to dispose of his paddy crop at satisfactory prices. It is exceedingly regrettable that Government continues to show as little interest as it ever did in the furtherance of this road project which was sanctioned as long ago as 1930 and which would be of inestimable value to the people of that area.

It was known that this Arakan road would inevitably form an item in the Special Officer's recommendations and Government's failure to press on with the construction is inexplicable.

This Chamber has always felt strongly on this point and its representatives warmly supported the priority list for roads in this district which couples this item first on that list, to be constructed simultaneously, with the new trunk road through Fatikcherri. We take this present opportunity again to use this to urge matter upon the attention of Government and trust that it will not continue to pass unnoticed to the detriment of the agriculturists as well as of the people in general.

35. (b) We consider the charges for conveyance of paddy and rice from the mufassal to the wholesale markets generally reasonable.

Owing to the fact that these commodities move largely in the owners' own boats we do not propose to give figures for the cost.

36. (a) Exports were made in previous years from Chittagong to Malabar Coast, Colombo, Laccadive and Maldive Islands, Paddy and rice both were exported. Rupsal, Kajla and Sefi grades inferior quality of boiled rice and Rajasal, Green Limbru grades of common qualities of paddy were exported. Export period was from September to early part

of December before the Burma and Akyab crop was ready. Last export was made in the year of 1922-23 and thereafter has entirely ceased.

Importations.—Higher grades of rice such as “Gobindabhog”, Kamini white rice, from Tippera district and “Balam” boiled rice from Bakarganj district are regularly entering Chittagong markets.

Importation of Burma rice.—Chittagong was not aware of Burma rice till 1904-05. There were two years of big famine in 1904-05 and 1905-06 which first introduced Burma rice into Chittagong markets. Thereafter again it was imported periodically in the years of 1912-13, 1915-16, 1919-20 due to failure of Aus or Winter crop in some parts either in mufassal or surroundings of Chittagong or Chittagong Hill Tracts districts. But from 1924-25 up to date every year Burma rice is regularly imported.

Following are the approximate import figures of Burma rice in 2 maund bags:—

Year.	Per bag of 2 maunds.	Per ton at 14 bags to a ton.
	Bags.	
1934	... 5,710,290	407,162
1935	... 1,008,931	72,066
1936	... 1,353,183	96,656
1937	... 1,095,156	78,225
1938 up to November 10th	... 1,313,840	93,846

The reason for the continuous arrival of Burma rice since 1924 is:—

Before 1924 most of land in Tippera and Noakhali districts were used only for rice sowing, but as higher prices for jute were available than that for rice most of the cultivators of abovesaid two districts gradually began to use their land for jute sowing, and therefore rice produce is reduced. Out of the abovesaid 5 years' figures, the imports of 1935, 1936, 1937 and 1938 were wholly consumed by Noakhali and Chittagong districts in replacement for the produce of these areas which has moved towards the jute-growing areas. Formerly, Chittagong people used to take local paddy and grind the same at home and were used to this food. But the method was troublesome and laborious and against that they began to get Burma rice nearly at the same price of annas 2 to annas 4 cheaper per bag and they are now habituated to take Burma rice. Therefore Chittagong itself requires every year Burma rice about 700,000 bags of white rice or say 50,000 tons and takes this throughout the whole year. Other districts which take Burma rice is Noakhali district. This district is situated in cyclonic zone and every year two, three or small or big storms sweep over this area and therefore more or less crops are damaged and suffer, also most of the land is used for jute growing and therefore every year some shortage occurs in this district, so this district also takes for some months Burma boiled rice every year; the quantity varies from 300,000 to 500,000 bags say 21,429 to 35,714 tons of boiled rice. Generally Noakhali demands Burma rice say from the middle of May till July end or arrival of Aus crop, if this crop is damaged somewhat then demand lasts more or less to August and onwards till the arrival of Winter crop; as it happened this year.

36. (b) The terms of importance from Burma are various, some merchants are purchasing on F.O.B. terms, some on C.I.F. terms, some have their agents through whom they purchase at ex-hopper rate from Rangoon, some have their own branches who are sending them.

36. (c) Burma rice import business is done on fixed standards of qualities. These are as follows :—

White Rice Qualities.

- (a) Akyab Larrong Big Mill Specials.
- (b) Akyab Larrong Small Mill Specials.
- (c) Akyab Mekranzi Big Mill Specials.
- (d) Akyab Mekranzi Small Mill Specials.
- (e) Akyab Mekranzi S.Q.
- (f) Rangoon Big Mill Specials.
- (g) Rangoon Small Mill Specials.
- (h) Rangoon Medong qualities.

Boiled Rice Qualities.

- (a) Akyab Larrong Boiled.
- (b) Akyab Larrong Milchar.
- (c) Akyab Mekranzi Boiled.
- (d) Akyab Nakranzi Milchar.
- (e) Rangoon Full Boiled.
- (f) Rangoon Milchar.

Standards were fixed in Burma long ago.

The standards do not vary year to year.

36. (d) The present method is quite suitable and workable.

37. (a) to (c) Calcutta interests are in the best position to answer these questions as Calcutta is a cheaper port than Chittagong and all the rice export business goes through Calcutta.

**Replies to the Questionnaire of the Rice Enquiry Committee, 1938, from
British Indian Association.**

Statistics of Supply, Demand and Stocks.

1. In Bengal, which is a permanently-settled province statistics are available generally from the reports from the village chowkidars, wherever possible assistance is obtained from officers of the Revenue Department such as Khas Mahal Tahsildars, and Circle Officers and from District Agricultural Officers and non-official agricultural correspondents. The information thus collected is forwarded through the subdivisional officers to the District Officer who has discretion to reject or amend reports in the light of his own knowledge or experience. The Royal Commission of Agriculture in India, 1928, observes that "these reports are admittedly often mere guesses and are, not infrequently demonstrably absurd guesses".

The character of information is thus unsatisfactory. According to the Royal Commission of Agriculture in India, the primary reporting agency may be the presidents of panchayats, where these are available

and the methods employed in the collection of jute statistics may be profitably employed in respect of paddy. A crop census every five or ten years will involve expenditure. The cost of employing a special statistical agency may not be justifiable, but all the same, obtaining of accurate statistics is essential for any welfare economic measure. The closer touch between the Agriculture Department and Director of Land Records and better utilisation of the services of the presidents of Union Boards as primary reporting agency may improve the situation considerably.

The estimate of normal yield is based on crop-cutting experiments. The expert officers of the Agricultural Department would carry out the method of random sampling and the mere crop-cutting experiments, the more accurate will be the statistics of normal yields. These experiments should be carried on under an expert statistical officer at headquarters. The defects of the method of selecting fields may be remedied if a sufficient number of such selections are made within a definite area.

2. It is feasible to compile fairly accurate statistics of inter-district movements of paddy and rice. The proportion borne by steamer and rail can be found out if the railways and steamer companies are made to keep separate figures of paddy and rice. The annual returns of rail and river-borne trade of paddy and rice should be available. A part of the boat traffic passes through Public Works Canals where toll is collected on the goods they carry. If the list of goods that pass through boat is classified, it will be convenient to get at accurate statistics. Figures at the markets where rice is unloaded from boats will be helpful in the matter. Paddy and rice carried by carts and lorries could be found out if the statistics are collected on the roads crossing the inter-district boundaries. All this will involve reasonable cost.

In any scheme of planning, including fixation of price and marketing, all these statistics would be of the utmost importance. Without intimate knowledge of all the facts in their details, any regulation of the crop is bound to be faulty and defective.

The Royal Commission of Agriculture in India, 1928, explain the question in a very clear and emphatic manner. "We have pointed out that it is most important in the interest of the cultivator that the marketing of his surplus produce should receive expert attention. No analysis of the marketing situation in a particular province, or in India as a whole, which has any pretensions to completeness can be made in the absence of data in regard to their relative importance of external and internal markets. This information is of little use if it is obtained by special enquiry for a single year. A comparison of returns over a number of years is required in order that any change in marketing tendencies may be detected and the knowledge used in the cultivators' interests."

They further pointed out that the statistics of inter-provincial trade movements had at least two other important uses:—

- (1) they enable each province to ascertain how far it is dependent on other provinces in respect of food-stuffs, and
- (2) they show the rate at which that dependence is increasing or diminishing.

This is extremely important in the event of failure of crops on a large scale.

3. An accurate statistics of the outturn of and area under paddy and the effective demand for paddy and rice district by district is necessary. The statistical officer with some of his expert assistance would find out and analyse the effect demand for paddy and rice by the help of statistical information collected.

For detailed replies, *vide* answer to question No. 1. The question is ably discussed in paragraph 538 of the Royal Commission of Agriculture in India.

4. Yes, the existing statistics are fairly accurate. It is happy to note that the statistical organisation of the Government of India is being strengthened on the lines of their recommendations of Royal Commission of Agriculture in India. Their recommendations (*vide* paragraphs 539, 540 and 541) should be followed in their entirety.

5. It is extremely difficult to get accurate information of the stocks of paddy and rice in hand in any particular year from cultivators; it can be obtained from the stocks held by merchants and arathdars.

A day as in the case of population census may be fixed in a particular year and union boards may be called upon to obtain the stock of paddy and rice in hand. Legislation appears to be necessary for arranging this census, although there is every doubt as to its success.

6. The annual consumption of rice in Bengal inclusive of seed requirements comes to more than 100 lakhs of tons. Her requirements are greater because the entire population does not and cannot have full meal. The estimate average production of rice is 88 lakhs of tons; the average import of rice is 6 lakhs of tons per annum. About a lakh of tons is exported annually abroad and about 2½ lakhs of tons are sent out to other provinces in India. There is thus a striking lag between the consumption and production of the crop in Bengal. The entire quantity produced in Bengal does not meet her requirements. The deficits is not fully met; it is partly met by imports, principally from Burma. The crop planning conference, 1934, called by the Government of India, stated that in Bengal there was a deficit of 125,000 tons per annum which was made good by imports chiefly from Burma. Hence, increased production is essential.

Rice being the staple food crop, self-sufficiency in this matter should be attained and can be achieved by improved methods of cultivation and by extended cultivation. The necessary steps are: (1) consolidation of lands into economic units, (2) intensive system of cultivation through better manures, better seeds, deeper cultivation, assured supply of water, (3) loan of necessary capital at low rate of interest as the ryots are in debts and have not reserves, (4) ensuring of economic price.

Improved cultivation cannot be had by a magic; it cannot be got by asking cultivators to do certain things; it must be planned and executed by Government or by some statutory organisation entrusted with specific purposes.

7. Generally co-relation subsists between the prices of paddy and rice; a rise in the price of paddy affects the price of rice and *vice versa*.

9. The prices of paddy and rice have been falling steadily during the last three years. During the last quarter of the year 1937-38 paddy of good quality was sold at Re. 1-10 to Re. 1-14 per maund in Calcutta against Rs. 2 to Rs. 2-4 per maund of the same quality in 1932-33, which means that the cultivator got only Re. 1-4 to Re. 1-8 per maund in the primary markets.

The following table will indicate the fall in prices:—

—	Seeta No. I.	Calcutta Table No. I.	Wholesale price of different varieties of rice.							—	Old gilla hard.
			Gross No. I.	Nagra.	Balam.	Kazla.	Kalna ord.	Kalna cleaned.			
1936.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
January	5 1 6	4 13 9	4 10 6	4 7 0	3 15 0	3 6 0	3 15 9	4 2 0	..	3 3 3	3 3 3
February	5 5 6	5 1 6	4 13 6	4 6 0	3 13 6	3 0 0	3 13 9	4 2 3	..	3 5 0	3 5 0
March	5 1 0	4 13 6	4 9 6	4 5 0	3 12 0	3 0 6	3 14 0	4 2 0	..	3 4 0	3 4 0
April	5 0 0	4 13 0	4 9 0	4 4 0	3 14 6	3 0 9	3 14 9	4 2 9	..	3 4 0	3 4 0
May	4 14 9	4 10 0	4 6 9	4 6 0	4 2 0	3 2 0	4 2 0	4 6 0	5 3 0	3 4 0	3 4 0
June	5 0 0	4 12 0	4 8 0	4 8 0	4 2 6	3 3 0	4 3 9	4 3 9	5 0 0	3 4 0	3 4 0
July	5 0 6	4 12 6	4 8 6	4 8 0	4 3 3	3 2 6	4 3 0	4 6 0	5 0 9	3 4 0	3 4 0
August	5 2 0	4 14 0	4 10 0	4 7 0	4 0 9	3 2 0	4 0 3	4 4 3	5 4 0	3 0 0	3 0 0
September	5 2 6	4 14 6	4 10 6	4 6 3	4 1 9	3 0 6	3 15 9	4 3 3	5 4 0	3 0 0	3 0 0
October	5 8 0	5 4 0	5 0 0	4 7 0	4 6 9	3 0 0	3 15 3	4 2 9	5 8 0	3 3 0	3 3 0
November	5 8 0	5 4 0	5 0 0	4 4 0	4 5 9	4 15 0	3 13 0	4 0 0	5 9 0	2 10 0	2 10 0
1937.											
January	4 8 0	4 4 0	4 0 0	3 12 0	3 10 0	2 12 0	3 6 0	3 10 0	5 8 0	2 12 0	2 12 0
February	4 4 0	4 10 0	3 12 0	3 10 0	3 12 0	2 10 0	3 5 0	..	..	...	...
March	3 14 0	4 11 0	3 8 0	3 10 0	3 13 0	2 10 0	3 5 0	..	4 6 0	2 10 0	2 10 0

April	..	4 0 0	3 12 0	3 9 0	3 12 0	3 14 0	2 12 0	3 7 0	3 10 0	4 4 0	2 8 0
May	..	4 0 0	3 12 0	3 9 0	2 12 0	4 0 0	2 12 0	3 7 0	3 10 0	4 4 0	2 6 0
June	..	3 14 0	3 11 0	3 8 0	3 10 0	4 3 0	2 11 0	3 5 0	3 9 0	4 2 0	2 6 0
July	..	4 2 0	3 14 0	3 10 0	3 12 0	4 0 0	2 12 0	3 6 0	3 10 0	4 4 0	2 10 0
August	..	4 2 0	3 14 0	3 10 0	3 12 0	4 0 0	2 12 0	3 6 0	3 9 0	4 4 0	2 10 0
September	..	4 4 0	4 0 0	3 12 0	3 12 0	4 0 0	2 12 0	3 6 0	3 9 0	4 4 0	2 8 0
October	..	4 4 0	3 14 0	3 10 0	3 10 0	4 2 0	2 8 0	3 3 0	3 7 0	4 2 0	2 2 0
November	..	4 1 0	3 11 0	3 8 0	3 9 0	4 0 0	2 6 0	3 2 0	3 5 0	4 2 0	2 2 0
December	..	3 14 0	3 10 0	3 7 0	3 8 0	4 2 0	2 6 0	3 1 0	3 4 0	4 0 0	2 2 0
1938.											
January	..	3 10 0	3 7 0	3 4 0	3 6 0	3 14 0	2 10 0	3 5 0	..	4 0 0	2 2 0
February	..	3 7 0	3 4 0	3 1 0	3 4 0	3 12 0	2 6 0	3 0 0	..	4 0 0	2 4 0
March	..	3 5 0	3 1 0	3 0 0	3 2 0	3 11 0	2 6 0	3 0 0	..	3 14 0	2 8 0
April	..	3 5 0	3 0 0	2 14 0	3 0 0	3 11 0	2 6 0	3 0 0	..	3 14 0	2 6 0

10. It is an interesting phenomenon that the supply being less than the effective demand, the price of rice falls steadily. This downward fluctuations of the prices of paddy and rice indicates that there are inherent defects in the supply side which are preventing the prices from gaining normal economic level despite a considerable deficiency in production as compared with consumption. This curious economic phenomenon may be traceable to (1) the ignorance of cultivators as to the conditions of supply and demand, (2) lack of holding capacity of ryots, (3) absence of organisation, (4) defects in the chain of marketing organisation, (5) restriction of export markets, (6) dumping of Burmese rice.

These are more or less permanent factors. It is true that conomic depression resulting in low prices for agricultural products especially for jute which is the cast crop for Bengal and which alone can accelerate the pace of agricultural prosperity of the province by its peculiar position, is pulling the prices of paddy and rice downwards.

The general economic depression, resulting in low prices for agricultural products, particularly jute, is the resultant of international factors over which we have little control. But there are remedies which are within the grasp of the Government of India or of Bengal.

The Provincial Government can adopt the following measures, if they are serious, for checking the downward fluctuations of prices of paddy and rice, especially when the demand, though inelastic, is greater than the supply:—

- (1) Wide supply of information to cultivators in the primary markets of the co-relation of production of paddy and the requirements of Bengal.
- (2) Increase of the holding capacity of ryots by loans in times of need, by improving the marketing organisation and by bringing about improved methods of cultivation.

The Government of India can be of help in the following way:—

- (1) Reduction of railway freight on paddy and rice from upcountry stations to port towns.
- (2) Obtaining of favourable terms for the export of rice in the renewal of the Ottawa Agreement.
- (3) Reduction or abolition of the export duty on rice or the export trade may be encouraged by the lowering of the exchange ratio.
- (4) Restriction of the import of Burmese rice by quota arrangements. This is very important as the internal prices of paddy and rice cannot rise, even if bargaining strength is asserted, for the uncertainty of the supply of Burmese rice. If Burma can export any amount of rice, the bargaining power given in the hands of our cultivators cannot be effectively and advantageously exercised. The difficulties of the Indo-Burma trade agreement can be got over by the quota arrangement.

12. The total production of rice in Bengal was showing steady decline as will be evident from the following figures:—

Year.					Yield tons in thousand.
1932-33	..	..	..	..	9,364
1933-34	..	..	..	..	8,273
1933-34	..	..	..	..	680
1934-35	..	..	..	..	7,208

It was only in 1936-37, the production jumped up to 10,668 (in thousand tons).

Therefore, the fall in prices has nothing to do with the local supply. Rather, such a restricted supply with downward movement should have resulted in the increase of prices, although unfortunately it has not done so. The average quantity of rice exported by Burma to India is a little over 16,80 lakhs of tons being the average for quinquennium 1932-33 to 1936-37. This quantity should not be a potent factor in depressing the prices of rice in our country, although it has been found that the upward movement of prices is often checked by an influx of cheaper Burmese rice. All this happens because of uncertainty and because of the unregulated nature of supply. It is found that the deficiency of India's supply of rice that is available to her for domestic consumption is almost equal to the amount imported from Burma. All this emphasises the necessity of a quota arrangement whereby Burma should be guided in her supply. The quantity of imports of rice from other countries to India may be ignored for practical purposes.

It is undoubtedly true that the fall in prices of rice in our country is accelerated by the supply by way of imports but the prices could be made to run on normal level even if the quantity of the existing foreign supply is not reduced.

13. Prices generally go downward due to shrinkage in demand. The local demand in respect of rice shrinks, not because the full requirements have been met, but the purchasing power of the people deteriorates, unless the national wealth of the country increases, consumption of rice will suffer a set back. Foreign demand does not exercise a great influence in the matter of rice. It is true that if the export of rice is encouraged, there is likelihood of the prices of rice exportable quality going up. But the quantity of export of rice is very limited and even if encouraged, it will not come to decent proportion. Bengal produced rice primarily for her domestic consumption. The demand for consumption of rice is bound up with the increase of the purchasing power of the people.

14. Bengal exports to the extent of 1 lakh of tons of rice to foreign countries. The foreign demand is shrinking, as the following figures indicate: in 1932-33, Bengal exported 120,795 tons of rice; in 1933-34, 107,657 tons of rice; in 1934-35, 94,151 tons of rice, and in 1935-36, 80,140 tons of rice. In 1936-37, the export rose up to 110,752 tons of rice. The abolition of export duty is bound to give an added sprunt to the export of rice. This increase in the quantity exported will result in the increase of prices of paddy to the cultivators. But in a country where production falls short of consumption, there are various

ways to bring about internal prices. Moreover, the mere increase in price is not the end, if the national wealth could not be enhanced. Unless purchasing power increases, consumption of rice cannot increase *pro tanto*. Even now, with lower prices for rice, the curve of consumption does not go up as is generally expected. Moreover, the encouragement of the export of staple food crop in its deficit state is not a sound economic law. A cultivator is a potential consumer of a large portion of his own produce than he is at present. The difficulty is that he cannot afford that luxury he is always in need and had to sell rice even when he requires it for consumption. A mere rise in prices by encouraging export of rice may force him to part with the quantity of rice fixed for consumption for sheer temptation of money and that will bring about decline in general nourishment because a cultivator in that case will go either unfed or be filled up by substitutes which will not have the necessary nourishing strength of rice, adapted to his physical conditions. All these questions shall have to be considered in connection with the abolition of export duty.

It is true that the export duty has affected the price of rice. There are good qualities of rice which fetch better price on being exported; the encouragement of export of such qualities of rice by the abolition of export duty or by deflating the exchange ratio will add to the national wealth although we agree that the quantity of rice exported is not a significant one. The fact that better qualities of rice are required abroad goes to show that there is less harm in giving facilities for export and more gain to the country.

Minimum Price and Improvement of Price.

15 (a). The average yield of paddy per acre in the province of Bengal is 1,374 lbs. per acre, that is a little more than 17 maunds. The yield varies from districts to districts as paddy grows better in heavy soils. A rich loam overlaying a heavy clay forms an ideal rice land.

(b) The average cost of production is deceptive, as cost of production varies not only from villages to villages but from farmers to farmers. A peasant may have a saving; he may get the work of farming done by family labour, whereas another peasant may work with borrowed capital and labour.

(c) The cost of production may be ascertained by taking the following factors into consideration:—Manure, seed, labour, rent, cess and other rates, bullock power and interest on capital.

16. There is no definition of fair profit to the cultivator. Cost and profit are relative to the opportunities for spending, to standards of life desired by producers, to the purchasing power of money obtained by the sale of the commodities produced. The economic price is the price which keeps the producer producing and consumer consuming. A quantitative fixation of economic price is precarious, as there is bound to be regional price standards. To get at an economic price requires close analysis of the statistics of the cost of production and profit of cultivators in the different districts.

17. The margin of cultivator's profit can be increased by brining about a rise in prices. This rise in prices can easily be accelerated by better marketing organisation which will increase the holding capacity of cultivator, one of the most outstanding defects.

18. In our country the system of cultivation is neither extensive, nor intensive. It is what is called "active system" by Prof. A. W. Ashby of Aberystwyth (Wales). Our cultivators live on the margin of subsistence and it is essential that improved methods of cultivation should be resorted to. The question of the improvement of Indian agriculture is a complex one incapable of any spectacular solution, for it is intimately bound up with the question of improving the economic condition of the ryot. The productive capacity of the land must be improved and that can be done introducing a system of intensive cultivation improved methods of cultivation should include this intensive system which will give due emphasis to better manuring, better seeds, better sires and deeper cultivations. Our cultivators are highly skilled in the practice of tillage, with a skill embodying the accumulated experience of generation but improved methods must be brought within their reach either by Government or by some other organisation. Rice can be grown on any soil capable of producing any crop but the conditioning factor is water supply. Where rainfall is assured, it is well and good, but where it is not, extensive work in levelling, embanking and canalisation are necessary for an artificial supply. Under tropical climate, bacterial activity proceeds at a rate unknown in temperate climate and the visible sign of that activity: is the loss of humus deficiency of this organic matter must be compensated. Rice responds to organic dressing and green manuring but intolerant of the acid conditions which such substances tend to develop. Hence, this tendency is to be counteracted. The country plough merely breaks up with inverting the surface 4 to 5 inches. The method of deeper ploughing with inversion should be adopted. The heart of land must be improved, because increased production is essential. We have too many cultivators and limited land accordingly the intensive system is the only way out. In a country of small, rather uneconomic, holdings, crowded with great pressure of population capitalistic farming is out of the question. A better outturn by improved methods of cultivation is assured.

19-23. There is already lag between consumption and production of rice-consumption being greater. Rice forms the staple food crop for Bengal and there is hardly any chance for deterioration of the price of rice to any ridiculously low limit. Rice in prices may be brought about by many ways. Fixation of minimum price is a premium on inefficient production and it should not be resorted to unless necessitated by the economic necessities of the situation.

The basis of minimum price should be the economic price and it should be revised annually.

There is a good deal of loose thinking in the matter. Fixation of minimum price presupposes that the control of the crop from original production to ultimate distribution should be in the hands of Government or a statutory body. Over-production, dumping from foreign lands and unnatural calamities may disturb the fixation of economic price. Moreover, rice is not purely a Bengal product and unless inter-district movement of crops could be regulated, the fixation of minimum price through legislation may invite difficulties. Accordingly the fixation of minimum price should accompany the planning of the particular crop, otherwise millions of cultivators selling paddy and rice to millions of consumers in markets and private places under the pressure of economic necessity could not be made to avail of the advantages of minimum price.

The minimum price must be maintained on accurate statistical knowledge. The growers must be registered; they will sell through recognised organisations; the Board will regulate the production, supply and sale of the crop. It is in this way that the minimum price can be maintained and assured to cultivators. There is no slovenliness in planning, and without planning, minimum price for a crop like paddy cannot be determined and maintained.

This minimum price can only be justified if it does not serve as an impetus to increased production. The sacrifices of consumers can have no other justification.

A Marketing Board on the lines adopted in England may be devised. There is no financial burden of great magnitude in such a scheme; it is financed out of the proceeds of the sale. A subsidy to the Board by Government will be necessary, at least at the initial stages.

The example of Japan is illuminating. Japan has over seven and a half million acres under rice, the crop ranging annually from 7,580,000 tons to 8,260,000 tons. The annual consumption is estimated to be about 9,260,000 tons. The deficit is to be met by importation. The aim of the Japanese Government is to maintain rice at a price which will be fair to the farmers and which will at the same time not press heavily on the labourer in the factory. "The Japanese Government is itself a buyer of rice on a large scale. It likes to have in its own warehouses about 680,000 tons at the end of each harvest season. This practice which received legislative sanction in 1921 enables it to control the price in the succeeding year. If the harvest is good and the price falls, it buys from the Japanese farmer and carries over a larger quantity against a bad year; then when the harvest is poor, it sells its stocks to the industrial labourers at a fair rate and so prevents the Japanese farmer from victimising him by charging an exorbitant prices. To assist it in its activities, the Japanese Government regulates import. If the stocks in the country, in the hands of private traders and in its own warehouses, are too small the tariff on imports is lifted altogether; if a moderate quantity of imports is necessary to keep stocks in the country upto the standard required, a customs duty which in 1927 was approximately Rs. 23 a ton is levied; if the stocks in the country are ample, then import is prohibited". This is how Japan maintains the price level of rice. The example of other countries for maintaining a fair price of the main crop may be profitably followed; in Egypt, £13,000,000 have been spent by Government in purchasing cotton which is stored in the warehouses of Alexandria awaiting a purchaser; in Canada huge quantities of what are stored by the wheat pool in the hope that prices will rise; in the United States the Government has created a fund of over 130 crores of rupees from which advance are made to farmers to enable them to hold up their crops till market values advance.

24. There is of course difference between the price paid to the cultivator and the price paid by the miller or exporter but that is bound to remain. The producer cannot possibly market efficiently; the work of marketing must be left to a separate organisation.

25. This difference may be reduced if a marketing organisation is devised in the interest of growers. All this postulates the establishment of a separate organisation being run in the interest of growers. Private middlemen will naturally and justly ask for profits for doing their part.

26. At present the cultivators do not generally pledge their crops before harvest but through the devise of "dadan" system the freedom of disposal of crops after harvesting is naturally curtailed. This can only be done away with if rural credit is scientifically organised which in the ultimate analysis emphasises the need of planning of both the production and distribution of the crop concerned.

27. In Bengal standards of weights and measures vary from 60 tolas a seer to 110 tolas a seer—the standard being 80 tolas a seer. This standard measurement should be enforced by legislation otherwise the room for deficit and chicanery becomes wide enough to cause ruin to growers.

Marketing.

28. In the rice trade there are local "farias" and "arathdars" on the one hand, the exporting merchants at Calcutta on the other. The system of marketing is unsatisfactory. There is often door-to-door sale. The local "farias" purchase the disposable surpluses of cultivators and they in combination with the arathdars try to strike out bargain out with the merchants at Calcutta. As rice is generally meant for consumption, the marketing is extremely desultory.

29. Allowances in cash or kind generally prevail and they should be abolished. They may not affect the price obtained by producers but the loss, however insignificant, should be totally annihilated.

30. There should be uniform weights and measures—the standard being fixed at 80 tolas a seer.

31. The standardisation of grades of paddy is extremely difficult. Different grades are grown in different soils and they often vary from year to year. If sufficient supply of water is forthcoming the grade may improve, but if it is not, the grade will deteriorate. It is by thousands of individual farmers and there are inherent difficulties in the standardisation of grades. There are different grades current in markets and especially for export business standardisation of grades is helpful.

Our committee are not sure if there is any successful device for practical solution of the inherent difficulties.

The task of standardisation of grades should be undertaken by a Trade Committee or by a statutory body.

32. The prices prevailing in the Calcutta wholesale paddy and rice market influence the prices paid to cultivators but they have no direct means of knowing the prices. They know from the local purchasers. The wider the information, the better for growers, as they can take advantage of better prices prevailing in the Calcutta.....market. Accordingly, information as to wholesale prices would be conveyed to growers by Government.

Regulated Markets.

33. In theory it is all very good that there should be regulated markets for rice and that will improve the standardisation of weights and measure and the present methods of assembling paddy. Theorists argue that legislation may be passed under which all transactions within certain specified areas have to be made within the confines of a market controlled by a Committee representing producers middlemen and buyers. This kind of control will also stop adulteration. But in a country where cultivators have small holdings and necessarily small surpluses of the crop for disposal and are under heavy incidence of indebtedness, the regulation of the assembling of the crop in a regulated market to establish a more direct contact between the actual growers and the millers and to obtain better prices for growers and also to encourage the farmers to try to grow the kind of paddies in accordance with market requirements is an extremely difficult task. A strong genuine co-operative organisation or any kind of Marketing Board for better disposal of the farmer's crop is more suited to the needs and these factors should be borne in mind.

- (1) Cultivators individually have small surpluses for sale.
- (2) Cultivators require money at the time of it not earlier than the disposal of the crop.
- (3) The efficient marketing cannot be done by the cultivators themselves.
- (4) Hundreds of varieties of paddy are grown by thousands of individual growers.

In fact, the Burma Rice Export Trade Enquiry Committee, 1937, examined the question of regulated markets for rice but they could not make specific recommendations in favour of regulated markets for the natural difficulties. It is not so in the case of jute.

Co-operative Sale Societies.

34. The existing system of marketing is unsatisfactory. Co-operative marketing will undoubtedly improve the system. Co-operative marketing should accept these basic ideals, marketing of commodity as a whole and not by locality; legal binding contract under which growers pledge their products for a term of years to the Association pooling of the products according to grade; management by experts; non-capital and non-profit basis; organisation of producers only; operated as semi-public bodies; merchandising with a view to stabilise crop movement; stabilise price and stabilise agriculture. There are huge inherent difficulties and without active Government assistance, no forward policy in co-operative marketing is possible. An Agricultural Market Act may be passed on the lines of a similar Act passed by the Federal Congress of U.S.A. in 1929. A Marketing Board may be constituted to promote farmer-owned and farmer-controlled marketing system. It will be provided with adequate finance with a view to grant loan to co-operative societies for marketing, construction of acquisition of marketing facilities for storing, processing, etc., formation of clearing house association with a view to effect the economic distribution of the commodity and minimise waste and loss in marketing and advances to members on goods delivered. The Board will also have power to promote education in co-operative marketing, encourage the

formation and development of co-operative associations, investigate over-production and advise on its prevention, inquire into technical improvements in agriculture and marketing; the organisation, to be successful, should travel on true co-operative principles. The failure of the co-operative jute sale societies started in the district of Mymensingh by the Government of Bengal should not discredit the co-operative movement in the matter of marketing as it was primarily due to the following causes; (1) the uncertainty of the price of Jute was a great disturbing factor, (2) the societies had to compete with well-organised rivals having practically unlimited resources in money and influence, (3) the management was top-heavy and inexperienced, (4) there was hardly any co-operative principle in these societies which later on developed into ordinary jute concerns doing more or less speculative business. The Government should rather take lessons from the failure. Co-operative marketing is extremely popular in America and her plan of organisation and financing may be profitably followed.

Communications.

35. In Bengal, the difficulties of communication exist to a considerable extent. High roads in East Bengal are not possible. Steamers and country-boats serve the purpose but the scope for improvement of their services is great. The freights charged by steamers and rails for conveyance of rice should be reduced. That will give added impetus to improving the movement of rice which will ensure better prices. There are districts in Bengal where the production of paddy overshoots the local necessities and unless the inter-district and inter-provincial movement of rice is smoother by better communications and lower freights, the initial defect in marketing is perpetuated.

Replies to the questionnaire sent by the Sundarban Landholders' Association.

Paddy Enquiry

1. (a) No.

(b) Ordinarily the present method of compilation of statistics is dependant on guessed figures supplied by village chowkidars through union boards or thana officers and in some places by Khasmahal Tahsildars; but in no case accuracy or reliability can be assured unless paid village officers are engaged as in Madras to collect such statistics. (*Vide* report of the Royal Commission on Agriculture. Page 605.)

(c) The defects in the existing method cannot be remedied without any substantial changes in the existing machinery and without increasing the cost.

(d) The alternative method of compilation is suggested in (b). Before entertaining any very costly scheme for the present it is suggested that the Madras scheme may be adopted tentatively as an experimental measure.

2. (a) It is not considered feasible to compile fairly accurate statistics of inter-district movements of paddy or rice at a reasonable cost.

(b) It would regulate prices by helping to control both supply and demand to an appreciable extent.

3. (a) Yes.

(b) Such statistics can be compiled from figures collected by the village officers as per scheme suggested in 1. (b) without any additional cost for the purpose.

4. (1) No.

(2) It is feasible. The railways and the steamer companies could help in giving the major portion of the information and the "aratdars" might supply the rest. This means of collecting the information desired cannot be costly and the statistics thus collected would help in regulating interprovincial prices.

5. (a) Yes.

(b) It is possible to compile such statistics with the help of union boards and municipalities.

(c) Legislation may be necessary if suggestions made as per (b) above prove futile.

6. In Bengal, there is a deficit of 125 thousand tons of rice per annum which is made good by imports chiefly from Burma. It may be noted that though in the Provinces of Behar, Orissa and Assam there is a deficit of rice, but in the Madras and Bombay Presidencies and in Sind there is no such deficit. The said deficits are made good by imports of rice from Burma which produces 7 to 8 million tons of rice, half of which is exported therefrom. It is most desirable that the said deficits should be met by increased production.

(a) Establishment and maintenance of agricultural schools in several parts of rural areas of Bengal. This should be done by the Government of Bengal direct. To grant primary, general, agricultural and cottage industrial education in our opinion is the primary duty of a Provincial Government. The agricultural schools should be provided with agricultural farms, just as a hospital is attached to a medical school and a workshop is attached to an industrial school.

The estimated average outturn of paddy in Bengal is 458 lbs. or $5\frac{1}{2}$ maunds per bigha. It appears from "Review of the Trade of India" that the yield per acre of clean rice in India varies from 648 to 1,580 lbs. which compares very unfavourably with Japan. Japan Government spends very large sums of money in developing rice cultivation in Korea.

(b) Use of manure. Japan imports heavy quantity of bonemeal from India for cultivation of agricultural produce, but it is regrettable that India rarely utilizes even cow-dung as manure. It is used as fuel and nothing can be a greater economic loss than this, having regard to the fact that there is an ample supply of wood and coal in Bengal, Behar and Central Provinces for fuel. A person using cow-dung as fuel in rural areas should be punished by legislation.

(c) This deficit can be met by increased production. Yes, necessary steps should be taken towards this end. The steps proposed are as given under:—

(i) Proper agricultural teaching is to be imparted to the cultivators for (a) improving the soil, (b) employing improved method of cultivation and (c) growing suitable variety of paddy on suitable lands.

(ii) Supplying the cultivators with improved seeds.

- (iii) Improving the breed of cattle through the stud bulls to be maintained by union boards.
- (iv) Holding occasional exhibitions of agricultural produce and opening demonstration farms in every union.
- (v) Providing easy credit to the needy cultivators through the medium of rural banks under support and control of Government.
- (vi) Lantern lectures and radio talks.
- (vii) Supply of water for irrigation purposes by tube-wells or otherwise.
- (viii) Tenants holding more lands than they have means to cultivate should not be allowed to hold the excess land; and for this purpose suitable Legislation may be necessary.

7. (a) Generally speaking, there is a correlation between the prices of paddy and rice. Since rice is manufactured from paddy, the prices of the two commodities will be interdependent. But in particular years there may be vast differences between the two prices for the following among other reasons:—

Paddy is not generally a commodity of export; its price therefore chiefly depends on the local demand. But the price of rice will depend not only on the question of local demand but also on outside or export demand which is a variable condition year to year.

But when we take into consideration the two prices over series of years, the correlation between them generally tends to follow uniformity.

(b) See above.

(c) Yes, some of the factors that may specially effect the prices of both the commodities are given below:—

- (i) Purchasing capacity of the consumers involving consideration of the broader question of fixing the ratio between Rupee and Shilling the desirability or otherwise of increased issue of paper money specially of lower denominations.
- (ii) Increased or decreased marketing facilities by means of roads, steamer services or railways.
- (iii) Tariff and freight questions affecting or regulating easy distribution inside the district, inter-district and inter-provincial.

8. Yes, to some extent there exists a correlation between the price of paddy and that of other food grains, viz., wheat, millets, etc. If the price of wheat is high, some wheat-consumers will eat rice and *vice versa*. If there is bumper crop of millets or maize the poor people are not likely to consume rice or wheat, price of which will necessarily fall.

9. (a) No, generally speaking the prices are not steadily falling.

(b) Previous to 1934 the condition was deplorable, but since then up to 1938 the prices of Patnai paddy fluctuated between Re. 1-11 and

Rs. 2-7 per maund and Patnai rice between Rs. 3-2 and Rs. 4-7-6, as will be seen from the following table collected from Gosaba.

	1934.		1935.		1936.		1937.	
	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.
Patnai paddy.	1 11 0	2 5 0	1 15 0	2 7 0	2 6 0	2 12 0	1 13 0	2 1 6
Patnai rice	3 2 0	4 0 0	3 10 6	4 3 0	4 4 0	4 7 6	3 6 0	3 13 0

It is possible however that some varieties of rice, the production and prices of which depend more on the outside than local demand have gone down considerably in price since 1934 due to lack of outside demand. In this connection it may be mentioned that price of *Sita* Rice No. 1 in January 1936 was Rs. 5-1-6 per maund, in January 1937, it was Rs. 4-8 and in January 1938, Rs. 3-10.

In the case of Kazla and Nagra Rice which is generally consumed by the poor and middle class people generally, the prices have tended to go downwards since 1936 due perhaps to the dumping of cheaper rice from Burma.

The prices of Kazla and Nagra rice as shown below between year 1936 and 1938. In January, the prices of Kazla Rice or Nagra per maund.

	Kazla per md.	Nagra per md.
	Rs. a.	Rs. a.
1936 for January	3 6	4
1937 " "	2 12	12
1938 " "	2 10	6

10. (a) It will be seen from 9 (b) that some varieties of rice are steadily falling in price due to lack of outside demand or dumping of cheap rice consumed by the poorer classes. (c) In the opinion of this Association the reasons are of a permanent character.

- (i) General tendency among nations to be economically nationalistic by producing rice on large scale in their own countries and raising high tariff wall against imports from India.
- (ii) Dumping of market with cheap rice from Burma which has assumed the position of general caterer of world market in rice.
- (iii) Large contractions of currency since 1927 made to maintain the exchange level has shaken international credit contributing to a general fall in price of post-war commodities.

11. (a)

- (i) India Government is in a position to approach foreign Governments to materially reduce their import duty on Indian rice offering them such trade concessions as would not hamper the growth of Indian Industries that may be still in their infancy.
- (ii) India Government can impose a reasonable import duty on Burma or other foreign rice to check dumping of Indian markets.
- (iii) Fixing the exchange ratio at 1s. 4d. for Re. 1.

(b) See above.

12. (a) Yes, in some cases the fall in prices is due to disproportionate increase in supply not of course of paddy but of rice imported from other countries. Production, however, did not at all increase during the last few years.

(b) Yes, foreign supply has increased considerably during the last few years chiefly from Burma, which has become a permanent supplier.

(c) (i) It will appear from answer to 9 (b) last part that fall in prices of Kazla and Nagra rices can be directly traced to increase of supply of cheaper kinds of Burma rice. A general fall in price of kinds of rice consumed by the bulk of the people indirectly tends to keep down the rice market generally.

13. Yes. The fall in prices is due to shrinkage in both local and foreign demand.

(1) Shrinkage in local demand. This kind of shrinkage happens every year during the earlier part of January due to demand for payment of Land Revenue under the Sunset law. If the date of such payment is shifted from 12th January to 15th February, the cultivators may get some relief as they would then be in a position to sell their paddy at a better market.

(2) Shrinkage in foreign demand; for answer see 10(c)(i).

14. (a) Yes. In addition to what has been stated in 10 (c) (i), the present export duty on rice has affected foreign demand of this commodity.

14. The export duty on rice should be abolished as early as possible. We fail to understand as to why out of all food grains of India, rice should be singled out for the imposition of export duty. It was 3 annas per maund. It has now been reduced to 2 as . 3 p. per maund and we are strongly of opinion that it should be abolished altogether. It may be that it will cause some loss of revenue to the Government of India but the loss would be nothing in comparison with the benefit which will be derived by the cultivators of India. The said loss may be recouped by the imposition of duty on the import of rice from Burma.

The quantity of rice which was exported from India to foreign countries in 1913-14 was 585,000 tons, but it has materially come down to 216,000 tons in 1934-35. The abolition of the said export duty is sure to develop export of rice from India to foreign countries.

Representation may be made to the Government of Burma to do the same as on the memorial of the Burma Chamber of Commerce, recommended by the Government of Burma, the Government of India has been pleased to reduce the rate of duty on the export of rice.

(b) Uncertain, as there are so many intermediate hands between the exporter and the actual cultivator. But if export demand increases the prices of paddy will automatically go up to the profit of the actual cultivator.

(c) See (a) above.

15. (a) Average yield of paddy per acre in the Sunderbans arable land is 18 maunds.

(b) Approximate average cost of production per maund would be about 12 to 13 annas.

(c) The cultivation and harvesting of a bigha of land is about Rs. 4 to Rs. 5 if it is entirely cultivated by hired labour and hired ploughs.

Three ploughs hired for tilling 1 bigha 12 annas to Re. 1-4, cost of seeds (3 seers)—annas 4.

Preparation of seed-bed and taking out seedlings 4 annas, transplantation 12 annas.

Harvesting, thrashing, stocking, etc., Rs. 2 to Rs. 2-8 Rs. 4 to Rs. 5.

16. The price of six maunds of paddy is about Rs. 9.

Less cost of cultivation and harvesting Rs. 5/profit Rs. 4, out of which rent is to be paid.

The profit should be shown more if the labour of cultivators is not counted. Of course the above production, if not improved, depends on good rain and there is partial failure of crops at every five years.

If a cultivator cultivates his land, say 20 bighas, with his own ploughs and labour his cost should not exceed more than Rs. 2 per bigha and in that case his profit would be Rs. 140 of which the rent to be paid about Rs. 50 to Rs. 60. Clear profit Rs. 90. This is inadequate to maintain his family of 5 heads if he does not get any other work during the off-season. If the price of paddy is about Rs. 2 per maund the cultivator can make their both ends meet.

17. Yes, cultivator's margin of profit can be increased.

Yes, by getting average yield increased by the improvement of land, seed and way of cultivation and also by better facility for marketing their crops through co-operative organisation.

Imposition of import duty on foreign rice and paddy and abolition of export duty on rice will generally raise the demand of rice both inland and outside resulting in the increase of price of paddy and rice for the benefit of the cultivator.

19. (a) (b) (c). It is not possible to answer the question by simple Yes or No when we consider the necessity of improving the condition of the Bengal cultivators it is imperative that their lot should be improved by increasing their purchasing capacity; but this is only possible under the present circumstances by fixing minimum prices for paddy and rice at Rs. 2 and Rs. 3-4 per maund, respectively. This restriction, however, should be maintained till up to the middle of April, when the harvesting and village marketing season would be over.

20. The essential conditions that must be fulfilled seem to be the following:—

(1) Inter-Provincial movement of paddy and rice should be so regulated as to maintain the minimum price suggested as above by mutual agreement with the Governments concerned.

(2) Regulation of foreign export and import is also necessary.

(a) In order to maintain the export price level Government subsidy will be essential to make up the deficiencies if there be any. This may result in a drain on the exchequer, a necessary evil which must be put up with in order to keep up or improve the purchasing capacity of the cultivators, which in the long run will compensate the loss by increase in the customs revenue.

- (b) Import duty on Burmese and other foreign rice is essentially necessary from November up to middle of April, the scale of duty should be such as may not affect the home price of rice and paddy. But in order to render relief to the poor cultivators who generally purchase their food-stuff after the period specified above there should be reasonable relaxation of import duty on Burma and other foreign rice.
- (c) Imposition of adequate duty on the importation of foreign rice supported by subsidy is always a necessary condition to render the scheme workable.
- (d) The minimum price of Rs. 2 and Rs. 3-4 for paddy and rice respectively mentioned in answer 19 above is to be fixed only for the commodities which have maximum export possibilities; other graded varieties of rice and paddy will naturally follow suit in matter of their prices.

21. Refer to answer 20. The minimum price should be fixed only for the period between November and middle of April, after which there should be so much import of Burma and foreign rice as would be warranted by the statistical demand of the Province, to be maintained by the Government.

23. Refer to answer 20.

24. The middleman's actual profit in the deal does not exceed 2 annas per md. and above 4 annas is appropriated by the Railway freight and other conveyance charges. The average difference is 30 per cent. of which 20 per cent. represents costs, 10 per cent. middleman's profit (Maximum).

25. Exclusion of some middlemen will not appreciably reduce the difference. Appreciable difference is only possible by reduction of railway and steamer freights to a reasonable minimum.

26. About 10 per cent. generally at Re. 1 per bigha.

(a) Yielding 6 maunds of paddy.

(b) Yes.

27. Weights and measurements should be standardised for marketing facilities, but we do not share the view that different standards now in vogue as a matter of fact affect the price obtained to the cultivator for his crops as cultivators are known to be quite alert to their interest in this matter at least.

28. (a) Through local middlemen.

(b) Although not satisfactory, it is unavoidable under the present circumstances.

(c) The cultivators are placed entirely within the clutches of middlemen who dictate prices.

29. Half to one seer allowance in $1\frac{1}{2}$ maunds is usually given by the cultivator to the buyer in 24-Parganas and other districts according to prevailing market custom.

(a) Yes. 80 tolas to a seer.

(b) By legislation.

32. (a) Cultivators depend for sale of their crops on Calcutta market or on Muffasil markets having extensive local demands. Some kinds of paddy or rice have no Calcutta demand; for sale of these the cultivators have to depend on local markets. Thus Calcutta wholesale paddy or rice markets only affect prices paid to certain class of cultivators who depend on Calcutta market both for nearness as well as for qualities of commodities in demand.

(b) The price paid to the cultivators should be equivalent to the Calcutta market price minus conveyance cost up to 4 as. per maund and middleman's profit up to 2 as. per maund, but as it is not usually possible for the cultivator to have knowledge of the Calcutta prices, the middlemen try to dictate the price to their own advantage.

(c) Producer cultivators have no immediate means of knowing the Calcutta prices and the movements that occur. They however get the information after long time through adjacent markets when they can hardly take advantage of the situation.

(d) Weekly reports of market prices should be circulated to the Union Boards or broadcasted by radio for information of the cultivators and also by the liberal expansion of the postal system.

33. (a) Yes.

(b) Within an area of 10 miles.

(c) A board consisting of 3 elected members from amongst the traders and the principal agriculturists and the landlords of the locality under the direction of the Union Board.

(e) Partially by Government partially by market tolls.

(f) Yes, by Legislation.

34. (a) Yes.

(b) All local buying and selling should be made through Co-operative sale and supply societies by discarding middlemen. Enforcement should be made by legislation.

35. (a) Certainly.

(b) Yes. The freight varies according to distance. The ratio between wholesale price and freight is nearly 7: 1.

Ten to fifteen per cent. of the wholesale price represent the conveyance cost.

36. (c) There are fixed standards. The buyer and seller fix those standards which vary from year to year.

(d) Trade agreements, protection duty on imports and abolition of export duty.

37. (a) Yes.

38. (a) Yes.

Replies to the Questionnaire sent by the Secretary, Paddy and Rice Enquiry Committee, Government of Bengal (File No. 2Q—1), submitted by Paddy Merchants' Association, (Ashutosh Bhattacharya).

1. (a) No; not satisfactory.

(b) The estimated outturn as obtained by the method is far from reliable. The defects in the present method of compilation are (1) so far as the acreage under rice is concerned, it is more or less a guess work of village Chowkidars. (2) as regards normal yield it is mainly based on results obtained by crop-cutting experiments carried on a small number of plots which are not always of representative character. In Bengal, where rice crop is almost entirely dependant on rainfall and rainfall varies from year to year and place to place and time to time during the same year, per acre yield, so it is dangerous to rely upon normal yield figure calculated on the basis of experiments made as stated above.

(c) No. If responsible officers are entrusted to make actual survey of the area under rice and statisticians to conduct crop-cutting experiments on sufficiently large number of plots of representative character, the defects can partially be remedied but the cost involved will be very high. In this case every police-station should be made a basic unit with Settlement Amins and Inspectors competent to make survey and crop-cutting experiments. If the task of ascertaining acreage of jute and paddy can be carried at a time by the same agency the cost will be divided.

(d) The alternative method of compilation is to seek the assistance and co-operation of the zemindars. If instead of depending on the thana officers, the District Magistrates request the zemindars to supply the information as to the area under rice crop within their respective jurisdictions, he can get approximately accurate figures for area. Most of the zemindars have also "Khamar Land" almost of all position and nature of soil in their respective areas. If they are urged to give correct report of the total outturn and of the area which gave the above yield the Agricultural Department can obtain by calculation more accurate figures for per acre yield. Any additional cost involved in the process should be borne by the department. But the best and easiest method of compilation of accurate figures will be through "The Village Rice Credit Banks", as in Java, if they can be established here.

(e) I am in doubt.

2. (a) No. I do not think so. Difficulty will be experienced in case of road and boat traffic. So far as Railway and Steamer borne traffic is concerned, Railway invoices and Bills of Lading of Steamers will indicate the direction of movement and the quantity that actually moved, if these can be collected by competent officers from railway and steamer stations or from merchants of big marts. But in case of paddy taken from growers by carts and boats it is very difficult to get accurate statistics of direction and quantity.

(b) It may help to know which District is in deficit of rice and which has a surplus.

3. (a) (i) Yes.

(ii) Yes.

(b) Statistics of area and yield can be obtained in the way stated in connection with replies to "C" and "D" of 1. But the demand figure can be estimated by actual census of consumption or by calculation on the basis of per capita consumption. The Village Rice Credit Banks will be the most suitable organisation for the purpose.

4. (1) No. So far as the transport of paddy and rice by boat and road is concerned it is not included in the list. It should be remembered that there is a huge trade in paddy between Bengal, Assam and Orissa by boat.

(2) Yes. Census of boat and road traffic is to be taken. It will not involve too much cost. The cost to be incurred is justified.

5. (a) Yes.

(b) To approach the traders and village mahajans, zemindars, talukdars, jotedars and well-to-do cultivators for information on the point just before the harvesting of the new crop.

(c) No.

6. (a) She is not always a deficit province.

(b) Partly by imports and partly by starvation.

(c) Yes. To make proper arrangements for watering the paddy fields and draining out excess water from them.

7. (a) Yes, every year. But sometimes it has been found that the relation could not be maintained.

(b) The ratio in prices of paddy and rice is 2 to 3 plus the cost of production which approximately 6 annas per maund. But every rule has its exception.

(c) Besides the universal economic principle of demand and supply there are some special factors which affect the price of rice and paddy. Imports of Rangoon rice or the decline of its price at home affects the price here in Bengal. Lack of holding capacity of the growers is also responsible for the fall in price of paddy particularly during the harvesting period.

8. Not so much; it has some relation with the price of wheat if the price of imported wheat is very low, the price of rice also falls to some extent. If jute is sold at a high price, the price of rice may go up in the sense that the holding capacity of the cultivator increases and he is not compelled to part with his rice in the worst markets. Per capita consumption also increases which may help in raising the price to a small extent.

9. (a) No.

(b) The price of paddy reached the record low level in March 1934. But it went up and in 1936 reached the highest level but again came down and recorded the lowest level in February 1938. The following typical quotations of Calcutta prices of paddy may be cited for illustration. In 1934 Patnai paddy was sold at Re. 1-12, Kalma at Re. 1-10, Mota at Re. 1-6. In 1935 Patnai Rs. 2-4, Kalma Rs. 2-2 and Mota Re. 1-12. In 1936 Patnai Rs. 2-8, Kalma Rs. 2-4 and

Mota Rs. 2. In 1937 Patnai Rs. 2, Kalma Re. 1-12 and Mota Re. 1-8. In 1938 Patnai Re. 1-12, Kalma Re. 1-10 and Mota Re. 1-6. The main factor responsible for the low price of paddy here is low price of rice at Rangoon. Lack of holding capacity may also be held to a small extent responsible for the fall in price particularly during the harvesting period.

10. (c) (i) Fear of dumping of Burmese rice.

(ii) Restriction of foreign trade.

(iii) Restriction of foreign trade.

11. (a) Expansion of export trade is of International character. Restriction on import of Burmese rice is amenable to control by the Central Government but the provincial Governments affected by the imports must urge the Central Government to take such a step. Holding capacity is amenable to control of the Provincial Government.

(b) Ninety per cent. is due to the fear of dumping of Rangoon rice the rest due to lack of holding capacity and the tariff walls in other importing countries.

12. (a) No doubt whenever supply is disproportionately greater than demand market goes down but in this particular case it has been found that the market had gone down even when there was not abundant supply. The market goes down even in anticipation of foreign import if the price over there is low.

No production has not increased rather gone down.

(b) Foreign supply has increased. Burma is the main importer; increase looks like permanent.

(c) (i) Mainly so; though in some cases it has been found that the price has gone up in spite of heavy import or gone down even when imports were less but there were other factors responsible for it.

(ii) The precise nature of influence exerted by foreign supply is that the market here goes up if the Rangoon market is high it goes down if the market at Rangoon is low; because there is a fear that unrestricted imports from Rangoon would dump the market.

13. (i) No. So far as local demand is concerned. As for foreign demand, some of Burma's oversea markets having been closed she is dumping Indian markets. If the trade barriers can be removed Burma can regain her export trade and would not mind to dump Indian markets. Bengal will not suffer a heavy fall in price of paddy. By trade pact with some of the foreign countries she can also expand her export trade and consequently the price of rice and paddy will go up.

14. (a) Not so much as every exporting country has a duty of almost of the same amount.

(b) Yes, it has.

(c) It will ultimately fall on the grower of paddy.

15. (c) See Government Publication of Quinquennial Report of Crop-cutting experiments. According to my information the yield varies from 60 maunds to 9 maunds of paddy per acre. On an average

18 maunds per acre. The districts which get the benefit of river silt have much higher yield.

(b) On the basis of 6 maunds per bigha the approximate cost per maund will be Re. 1-10 at the present rate of labour.

(c) The cost of cultivating, transplanting, weeding, cutting, carrying and threshing, the rent of the land, the price of the seeds and manure, if any, are included in calculation of expenditure per bigha which is about Rs. 10. The cost per maund is found out on the basis of 6 maunds of paddy grown per bigha.

16. As paddy cultivation is the main source of living of the cultivators in Bengal and in many cases the only source of income his profit should be such as would suffice to give him food and clothing. By economic price I mean that the price should be such as would cover the cost of production and enable him to make both ends meet.

17. At the present rate he has no profit; the present rate does not even cover the cost of production. But even when there is a profit it can certainly be increased if the price can be raised or if per acre yield can be increased.

18. Yes; if there is provision for sufficient water-supply and drainage of excess water. In the absence of the above no other method will succeed even if practicable.

19. (a) Yes; for paddy will do.

(b) On the basis of the cost of production and 50 per cent. profit if not more.

(c) At least for three years.

20. (i) Protection should be given so that imports of rice, paddy and broken rice from outside may not disturb the internal market.

(ii) Storage arrangement and credit facility in the absence of ready buyers.

(iii) Supervision.

21. By legislation.

22. (i) Licensed Arathdars or Commission Agents or Village Rice Credit Banks as in Java.

23. Small expenditure is necessary for maintenance of a staff of Inspectors and Auditors to supervise that a fair price is obtained by the cultivator. The expenses can be met from a small license fee to be realised from the arathdars. The arathdars are to work on a fixed commission.

In the case the alternative suggestion is accepted huge capital expenditure will be necessary.

24. The difference between the price paid by the miller to the agent and by the agent to the cultivator is 1 to 2 annas per maund of paddy excluding the cost of transport but it is often found that the agent has to work at a loss.

25. Yes, if it is possible to eliminate middlemen altogether. Unlike jute paddy has not to pass through a chain of middlemen any of whom can be eliminated without detriment and disadvantage to the growers themselves.

26. (a) To a very small extent say 10 per cent. of the crop. But there is a system in vogue in some parts of the province that the cultivators borrow paddy from the village mahajans with a promise to pay one and half when the crop will be harvested. Sometimes they take advance to meet the harvest-expenses and have to make some allowance in price for a fixed quantity of paddy to be determined by mutual agreement.

(b) It does not affect the general trend of price but only those who take advantage suffer to the extent that they get the price less than the actual value for a stipulated quantity only.

27. Nothing so far as my knowledge goes.

28. Nearer the big marts the cultivator approaches the arathdars or the millers direct but in the interior the beparies approach the cultivators and purchase from them.

(b) Quite satisfactory. As there is keen competition between the beparies or the arathdars there is very little chance of cultivators getting unfair price. Rather much of their time and worries are saved.

(c) The only defect is that the cultivator has no holding capacity; other defects are not to his disadvantage. The beparies are compelled to take delivery of the goods even if the market has gone down but they cannot claim delivery of their saoda if the market has gone up as the cultivator takes advance at the time of saoda and the full price of the commodity before it is actually delivered.

29. There are certain customs prevalent in many marts where allowance in cash or kind is made from the price of paddy. Though it apparently affects the price obtained by the cultivator but in fact it does not, as without it the price would have been less to that extent. These customs can be eliminated if the defects in quality of paddy could be removed and fair commission be paid to the agents.

30. (a) Not necessary. If standard weight is fixed 80 totals a seer and 40 seers a maund should be the basic weight.

(b) There are at present different weights of measurement is vogue in different parts of the province and the price has been adjusted according to that. If the change is made, the cultivator will experience some difficulty until they can adapt themselves to the new system. The necessary change in price should also be made clear to them.

31. (a) No grade except in case of white Patnai rice for shipment purpose.

(b) No; neither practicable nor necessary. Present system is sufficient for the purpose.

(c) Though I am sure that standardisation of grades will be of very little help to the grower if not to his detriment still if the Government is inclined to standardise the grade the authority should be a statutory body where representatives of shippers on one hand local traders and growers on the other should be taken in equal number.

(d) Very difficult. The statutory body should appoint expert inspectors to certify as to which grade the quantity offered belong and prices are to be paid according to that certificate. In case of dispute sealed samples should be sent to the statutory body for determining the grade.

32. (a) Certainly they do in those places which have trade relation with the Calcutta Market.

(b) Those places which are entirely dependent on the Calcutta market is affected fully and those which have partial relation are affected partially but in case they get a sudden outlet in another direction they are not at all affected.

(c) Yes, they have. The Beparies and employees of Arathdars, millers and exporters reach the cultivator at a time and competition between them gives him benefit of the rise of the market to the fullest extent. Absence of too many buyers indicate downward movement.

(d) To take extra care licensed Arathdars in big marts might be asked to hang up notice boards indicating daily price of paddy and rice.

33. (a) Establishment of regulated markets will be partially helpful to the cultivator. But in the absence of other remedies as suggested it will prove an unnecessary burden.

(b) The regulated market should operate over the area from where the cultivator finds it convenient to send his paddy.

(c) Initiation should come from the merchants but before final selection representatives of Arathdars, Beparies, Millers and Growers should be consulted.

(d) Representatives of growers on one hand and Beparies and Arathdars on the other should be in equal number.

(e) From the license fee of the licensed Arathdars as suggested before.

(f) Yes, by legislation.

34. (a) Co-operative paddy sale societies at the door of the cultivator, i.e., at the growing centre, may improve the present system of marketing if they are obliged to hold the stock of the cultivator for better days and advance money against the stock at a low rate of interest.

(b) Honestly, integrity and ability in those who will run the show, absence of top-heavy administration and a huge capital resource at their back are the conditions necessary for the success of such societies. Not by legislation but by selection of best men. The present system of working of the Co-operative paddy sale societies as existed in Bengal is open to criticism. The failure of most of societies proves their unpopularity.

(c) (i) Only growers and traders will be eligible to the membership of the societies in which small growers should predominate.

(ii) Yes. It should be remembered that Bengal has an estimated outturn of about 135 lacs of tons of paddy valued at about Rs. 54 crores the major portion of which is marketed at the harvesting period, i.e., the months of January, February and March. Instead of Co-operative paddy sale societies the system of licensed Arathdars as selling agents will solve the financial problem better. They will work on fixed commission and invest own money when outside help is required. Reserve Bank should offer credit on security of stock.

(d) Yes. The duties and functions of the Co-operative paddy sale societies should be to sell at the best rate on behalf of the growers, while those of the regulated markets should be to attract sellers and buyers by offering good space, convenient transport facilities and fixation of charges and market prices and minimising malpractices.

35. (a) Yes.

(b) Transport charges by railway and steamers are excessive. Where there is no good pucca road, transport by carts and lorries is also costly, if not seasonal. By country boat it is the cheapest. But excepting a few districts of the East Bengal and Sunderban area of lower Bengal country boat routes have almost been stifled. From 10 to 40 per cent. of the price can be roughly stated to be the transport charges under the present system of conveyance.

36. (a) Coarse, medium and fine; these are the three grades exported from this province to other provinces of India and foreign countries. Export of paddy is practically nil. Some quantity of all the above grades of paddy go to the sister provinces of Assam and Bihar. Coarse and medium quality of paddy and rice are imported from foreign countries.

(b) Rice is exported generally by the European shippers though some quantity is being shipped by the Indian shippers to the Asiatic and African ports. But few of them are children of the soil. We do not know their terms and we sell to the shippers generally ex-godown on cash payment. Some transaction may be done on the basis of site payment but it is always ex-godown. Complaints regarding quality are not to be entertained after delivery from the godown. Some forward transaction is done but no fatka.

(c) Not strictly; but they may be construed as such, as transactions are generally made on samples taken from the lot offered. Some forward transaction is made on average quality of the season or sealed samples. But in the case of imports it is always on average quality of the season.

(d) For exports, trade barriers of other countries should be removed by negotiations and trade pacts. For imports, restrictions should be made by imposition of duty.

37. (a) Yes.

(b) No.

(c) Though I cannot supply comparable figures of freight charges from competing countries at present I can state for certain that the freight charges to some ports from Bangkok, Saigon and even Rangoon are much lower than that from Calcutta. While we are to depend upon only one or two British Line of Shipping for our exports others have competing shipping lines some of which are carrying at a very cheap rate.

38. (a) Yes. I consider it both desirable and practicable.

(b) A Central Rice Committee should be formed with full scope to discuss all aspects of the trade including questions of Tariff and Trade Pact and make recommendations thereon. Representatives of trade and industry should predominate in the list of the members of the Committee with Commerce Member, Government of India, as its Chairman.

(c) It can improve the export trade which has possibility of regaining its former strength which was about 5 lacs of tons a year.

Additional Remarks of Sj. Ashutosh Bhattacharjee.

In addition to the remarks made in connection with the replies to the Questionnaire I should like to make the following observations for kind consideration of the Chairman and Members of the Paddy Enquiry Committee.

The price of paddy in Bengal has been falling since 1929, for instance the Calcutta price of Patna paddy during the harvesting period of 1929 was Rs. 4-8. It gradually came down to Re. 1-12 in 1934. Though there was a slight rise in 1935 and paddy was sold at Rs.2-8 in 1936 (causes were other than natural). It again came down and in March 1938 it reached the record low level of Re 1-12. So it can roughly be estimated that the average price obtaining by the cultivator in the present year is Re. 1-4 per maund. It has already been pointed out that the average cost of production is Re. 1-10 per maund. In this way the present price is said to be uneconomic, as it does not even cover the cost of production. It should also be remembered that rice cultivation is the main source of income of the agriculturist which form 87 per cent. of the population of the province. Jute is another staple crop of Bengal but it is not so important inasmuch as a vast majority of the cultivators do not grow jute. So income from jute is not distributed amongst all the cultivators while almost every cultivator gets the share of income from rice.

In Bengal half acre of land is available for cultivation per capita and about 18 maunds of paddy per acre is the average yield; so the income of the cultivator from paddy at the harvesting price of the present year can be estimated at Rs. 11-4. His income from jute at the harvesting price of the present year was not more than Rs. 3-3. So per capita income of a Bengal cultivator for the year may be estimated at Rs. 14-8. His income in the year 1929 must have been three times as much. Moreover eminent economists like William Digby (in 1898-99) and Berring Barber (in 1900) estimated per capita income of an Indian to be Rs. 18-9 and Rs. 23 respectively. Lord Curzon estimated it to be Rs. 30 in 1900. So in the present year the income of a Bengal cultivator is less than any of the above three figures, i.e., less than 3 pice a day. No comment is necessary. The fall in price of paddy in Bengal within a decade is highly appreciable. This is how the agricultural population of Bengal has been hard hit, and the whole economic structure of the province has been shaken. You cannot industrialise a province of 80,000 villages overnight. So a near change-over from the present deplorable condition through industry is beyond our imagination. There is however immediate prospect of redress through agriculture. Either the price of the crops is to be raised or the production is to be increased. As jute is beyond the scope of enquiry of this Committee I would restrict my observations to paddy only.

I have given most careful thoughts over the question of increase in yield. We can ill-afford any further land for rice cultivation. My considered view is that as at present situated there is no immediate prospect of higher yield per acre also. Excepting a few districts in East Bengal almost the whole rice acreage is entirely dependent on rain

water for cultivation. Now rice is a plant grown in standing water; without water the rice plant cannot develop. Monsoon being erratic now-a-days insufficient rainfall or the untimely fall of it damages the crop. There being no provision of draining out of excess water; heavy shower or flood water of the river also creates occasional havoc. So until and unless proper arrangement for watering the paddy field and draining out of excess water are made by irrigation, there is no prospect of increasing the yield. The process will take time and involve huge capital outlay. All methods of scientific agriculture even if the soil of Bengal permits them will be of no avail if there is no sufficient and timely supply of water. As regards manure I am in doubt if in the present financial position, the rice cultivator can afford to purchase it. So the only alternative method is to raise the price of rice. The short cut to reach the goal is to restrict imports by imposition of duty on foreign rice (Burma included). The principle has already been accepted as there is a standing duty on imported broken rice but the desired result has not been obtained as whole rice and paddy have free access and the products of Burma, the biggest exporter, have been exempted from the duty.

Burma has a huge surplus of about 35 lacs of tons a year which she must sell at any price she can get. As many of her oversea markets had been closed she diverted her attention to India and increased her exports from 10 to 20 lacs of tons a year to India. The precise nature of influence exerted by Rangoon rice on the Indian markets is that if she can sell her surplus elsewhere at a better price, she does not come to dump the Indian markets but whenever her foreign buyers become scarce she dumps Indian markets. So when there is a fall in the price of rice in Burma the market here also goes down in anticipation. Thus even without heavy influx the market here may go down. In this particular year it has been often found that whenever the rice market here tended to go up which was quite natural it was checked by low quotations of Rangoon rice. The fear has brought insecurity in trade and the stockists do not venture to stock and the growers have to suffer consequently. If Burma is not allowed to undersell, the rice market will take its natural course and as we grow less than what we require the market must go up to an economic level.

I know that under the existing circumstances, imports of Burmese rice cannot be restricted immediately. Attention may be drawn to the fact that Indo-Burmese Trade Agreement will not expire before the end of the financial year 1939-40 but may be terminated at that date, if a notice to that effect is served by the Government of India on the Government of Burma before the end of the current financial year, i.e., 1938-39. The Government of India should be urged to take opportunity of this provision of the trade regulation order and notice should be served on the Burma Government sufficiently in time, intimating the intention of the Government of India to impose a protective duty on Burmese rice, paddy and broken rice.

I think a duty on Burmese rice is enough to raise the price here. But still to ensure that a fair price is obtained by the cultivator minimum price of paddy should be fixed. It is generally found that necessity compels the cultivator to sell his paddy straight away it is harvested. All rush to the market at a time and the market sags. So the cultivator has to sell at the worst markets. Establishment of village Rice Credit Banks as in Java would solve the problem quite satisfactorily and not Co-operative Paddy Sale Societies as they are at

present constituted. The working of these societies is open to criticism and that is why the system provided a failure in Bengal. In the scheme suggested by me a capital expenditure at the beginning and recurrent financial help in the shape of credit facility will be necessary. A detailed scheme can be put forward if called for. The Village Rice Credit Banks will also supply accurate statistics of area and yield.

I would further like to suggest that mere declaration that the minimum price of paddy is fixed at such is sufficient to raise the price if the imports can be restricted. And even in the absence of a well planned scheme to augment the necessary conditions the cultivators will be partially benefited and their lot will be certainly better than the present one. I have got a scheme as to how to fix and maintain minimum price of paddy and rice. If requested I shall be glad to put it before your Committee.

At the request of the Hon'ble Minister in charge of the Revenue Department, I sent a note describing the nature of uneconomic price of rice in Bengal and how to raise it as early as April last. In my speeches at the Indian Institute of Economics on the Problem of Rice in Bengal and Economic Uplift of Rural Bengal, I have tried to discuss all aspects of the problem thoroughly. So I would like to refer to the above note and the speeches for further elucidation on the point.

In conclusion I earnestly appeal to the members of the committee to realise fully the gravity of the situation, not to be distracted from the real issue and suggested such measures as would ensure relief to the cultivators.

ASHUTOSH BHATTACHARYA.

Replies to questionnaire (Drawn up by the Bengal Paddy and Rice Enquiry Committee) from the Hooghly District Agricultural Association.

Statistics of Supply, Demand and Stock.

1. (a) and (b) The present method of estimating the annual acreage under the paddy crop, and yield per acre, is not satisfactory, as the statistics are far from accurate in Bengal as in other permanently-settled tracts, where the figures for paddy (acreage and outturn) given, are mere guesses of village chowkidars. According to the "Manual of Rules for the preparation of crop reports and agricultural statistics of Bengal", the primary reporting agency is the Thana Officer, who depends upon his illiterate chowkidars for the required statistical data.

N. B.—The Royal Commission on Agriculture state that "in Bengal, Bihar and Orissa where such officers (village officers) as in Madras are not available, reliance has to be placed mainly on the reports from the police; wherever possible assistance is to be obtained from the officers of the Revenue Department, such as Khas Mahal Tasildars, and Circle Officers and from the District Agricultural Officers and non-official agricultural correspondents. The information thus collected is forwarded through the Subdivisional Officers to the District Officer who has discretion to reject or to amend reports in the light of his own knowledge or experience. These reports are admittedly often mere guesses and are not infrequently, demonstrably absurd guesses (Report, page 605)."

We see that the statistics based on unreliable data are defective and hence of little utility.

(c) The defects in the existing method cannot be remedied without any substantial change in the existing machinery and without increasing the cost.

(d) The crop forecasts are based on (a) the area under the crop, (b) the standard yield and (c) the condition factor. So if any improvement of statistics is to be made, it is to be done in the method of estimating (a) area, (b) the standard yield, and (c) the seasonal condition factor.

At the meeting of the Rice Committee under the Imperial Council of Agricultural Research in 1937, various suggestions were made for the improvement of the statistics of rice production.

In 1919, the "Board of Agriculture" recommended adoption of Aeroplane Photography as a means of improving area statistics in permanently-settled tracts. This method has been successful in the U.S.A., the United Kingdom and several other countries. But it may not be of great help in Bengal, where holdings are fragmented and mixed cropping prevails. The Director of Land Records and Surveys of Bihar and Orissa, in his evidence before the Royal Commission of Agriculture, suggested that closer touch between his department and the Agricultural Department would be productive of good results.

A large number of crop-cutting experiments in every district selected on random sampling basis, may be carried out for improving the figures of standard yield. Figures of standard yield should be estimated from the data based on a large number of accurate crop-cutting experiments.

The third factor is the condition factor or "Anna-Wari" estimate, Anna-valuation—of the crop is the weakest link in the chain, and will remain mere guess work until and unless some drastic improvement is made in the primary data collecting agency.

N.B.—The Royal Commission on Agriculture state that "the condition estimate is most difficult to arrive at satisfactorily. We agree with the view expressed by the Board of Agriculture in 1919, that all attempts to teach the primary reporting agency to form an exact mental picture of a normal crop should be abandoned and that it is for the District Officers and provincial authorities through whom the village accountant's estimate passes, to correct it".

At present 12 annas denote a normal figure in Bengal.

The experiments should be conducted by the Statistical Assistants under the guidance of one expert statistician for the province placed under the Department of Agriculture. This means strengthening the department with extra staff and hence extra expenditure. The cost of organisation will depend on the scheme decided upon. In view of the growing importance of Agricultural statistics in the shaping of the economic policy of the country, the cost incurred for a thorough overhauling of the whole system will not be perhaps prohibitive.

The whole problem is at present under the consideration of the Indian Council of Agricultural Research Rice Committee, and no final decision has yet been arrived at. A copy of the note on the Improvement of the Statistics of Rice Production by the Indian Council of Agricultural Research Rice Committee, dated the 23rd December 1936

and extract from the note of professor P. J. Thomas on the improvement of Indian Rice Statistics, which were laid before the Indian Council of Agricultural Research Rice Committee—January 1937, are given in the memorandum attached herewith for reference. These notes will throw light upon the present situation of the subject.

1. (e) No definite reply can now be given to this question, while the random sampling is under experiment. But it is believed that it would give more accurate results. A large number of experiments should be undertaken as has been suggested by the Rice Committee. It would be unwise to express any opinion before results of such experiments under different methods carried out in different rice growing provinces are available for comparison.

2. (a) Inter-district transport in Bengal is carried on (1) by rail, (2) by steamer, (3) by boats, and (4) by carts and lorries. For the first and second, accurate statistics are possible provided the Railways and Steamer Companies can be made to keep separate figures of paddy and rice and annual returns of rail and river borne trade of paddy and rice be made available. For the boat traffic a part of it passes through Public Works Canal and the toll is collected on the goods they carry. Classified lists of the goods will solve one part, for the other, the boats load paddy and rice in one market, and unload them for sale, transport or otherwise in another market. Figures kept at both these (inter-district) markets compared with one another will lead to a figure. For carts and lorries statistics of the trade should be collected on the roads crossing the inter-district boundaries.

(b) The statistical information regarding the inter-district movement of paddy and rice is of great importance in the interest of cultivators, in so far as to the marketing of their surplus stock of paddy. Without such information no analysis of the marketing position can be made, *i.e.*, any change in marketing tendencies cannot be judged. Such figures, taken as a whole of the provinces, are required for ascertaining statistics of the inter-provincial trade movements. They enable each province to know her own position in respect of food-stuffs. This is of vital importance in the event of famine. (*Vide* paragraph 533, pages 611-12 of the Report of the observations made by the Royal Commission on Agriculture on the importance of inter-provincial Trade Statistics.)

3. (a) Yes, (1) accurate statistics of outturn and acreage of paddy and (2) the effective demand for paddy and rice district by district should be obtained.

(b) For replies to these questions please see the replies to question No. 1 (d).

4. (1) Not known.

(2) If statistics of Bengal's inter-provincial trade on rice are not correct, I think it is feasible to obtain accurate statistics on this point. The statistics can be compiled in the same way as in the case of inter-district movements. In view of the importance of accurate figures the cost will not be prohibitive.

5. (a) Yes, it is possible.

(b) As in the case of population census, a day may be fixed in any particular year and each union board may be called upon to ascertain the stock of paddy and rice in hand within the union for that day, on

payment of some reasonable remuneration to the union board agencies concerned.

(c) Legislation appears necessary to make people give accurate information as to the stock of their paddy and rice on that particular date to the union board agents.

6. (a) Bengal produces paddy and rice in deficit of her requirements every year. This may be proved by the following statement of the total annual requirement of rice for consumption and seed in Bengal:—

(1) Consumption	..	..	..	98·30	Lakhs of tons.
(2) Seed for 21½ million acres at 25 lbs. per acre	..			2·40	Lakhs of tons.
			Total	..	100·70 Lakhs of tons.

For about 3 per cent. increase in population between 1931 and 1938 add according to per Capita consumption	2·98	Lakhs of tons.
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The present requirement comes to	103·68	Lakhs of tons.
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i.e., about 104·00 lakhs of tons.

This figure is considerably in excess of the average yield in this province. The total production of rice in Bengal is 8,838 tons (in thousands).

The statistics show that there is a striking difference between the production and consumption in Bengal.

(c) At least some part of the deficit can be met by increased production.

It is therefore, extremely important to investigate into real causes of this decline and find out whether the cause lies in the persistent climatic factors or in the law of diminishing returns. If so, proper steps towards this end should be taken. Steps for improving the yield are the appropriate remedies.

N.B.—Sir John Russell in his report on the work of the Indian Council of Agricultural Research in applying science to crop cultivation in India says “Seven great factors capable of improving the yield of crops in India, are—

- (1) Better varieties of crops.
- (2) Better control of pests and diseases.
- (3) Better control of water-supply for crops.
- (4) Prevention of soil erosion.
- (5) Better use of manures and fertilizers.
- (6) Better implements and cultivation.
- (7) Better system of cropping, in particular, better rotations and the use of more fodder crops with the view of obtaining more farm yard manure.” (Part I, page 46, Chapter 3.)

7. (a) and (b) Yes, there is co-relation between prices of paddy and rice. It is explained thus,—for one maund of boiled Seeta rice or rices of similar types, quantity of paddy required is 1 maund 20 seers. But the same quantity of paddy produces 35 seers or even less of Atap rice owing to breakage, and boiled coarse paddy 1 maund 20 seers yields 41 seers of paddy. The cost of hulling generally ranges between 3 to 6 annas according to demand. Charge of “Dhenki-husking” in country-side is 7 annas per maund of rice. This is the correlation which exists from year to year. Thus if the price of paddy rises, the price of paddy and hulling charge go up, the price of rice also goes up.

7. (c) At present the following factors are considered to affect the prices of paddy and rice—

- (1) Grower's ignorance of the statistical position of the trade. For want of knowledge of inter-district movements and also of the needs and supply, it is often seen that a district selling paddy in harvest season, is buying paddy later in the year to meet local deficit.
- (2) Lack of holding capacity.
- (3) Low price of jute—it weakens the holding capacity and thus exerts pressure for selling paddy.

The above factors affect the prices even when there are accumulated stocks at the hands of merchants; because they do not sell their paddy on agreed and regulated scheme of prices.

(4) Restriction of Export Markets.

Many countries entering into bi-lateral trade agreement with the countries of their choice, have imposed restrictive measure on the import of rice. These measures have reacted adversely on the export of Bengal rice, however small it might be, it had so long been maintained the price of paddy in Bengal on an economic level.

N.B.—Item No. 20 of the agenda of the Indian Council of Agricultural Research Rice Committee meeting—January 1937—Note by Mr. Manmohan Sinha Roy on rice trade and economic investigations. The subject relates to enquiry as to the cause of fall in export trade in Bengal rices—the present position of the subject—“further attempts made to evolve a strain suitable for European markets. Please refer to pages 25 and 54 of the Annual Report of the Bengal Rice Research Scheme for 1936-37. The Commerce Department have been asked to ascertain through the Trade Commissioners regarding the requirements of the foreign markets”. (It is to be noted that the Rice Committee is silent about bi-lateral trade agreement, if there be any, affecting export trade of Bengal rices.)

(5) Dumping of Burma Rice.

8. There is no co-relation between the prices of paddy and other agricultural staples excepting jute to some extent. For the nature of this co-relation please refer to reply (3) to the question No. 7 (c).

9. (a) Yes, the prices of paddy and rice have been falling during the last three or four years.

For supporting the above reply a table is given below showing Calcutta wholesale prices of different kinds of rice,

Calcutta wholesale price of different varieties of rice.

	Seeta No. 1.	Table No. 1.	Gross No. 1.	Nagra.	Balam.	Kazla.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1936.						
January ..	5 1 6	4 13 9	4 10 6	4 7 0	3 15 0	3 6 0
December ..	5 8 0	5 4 0	5 0 0	4 0 0	4 3 0	2 12 0
1937.						
January ..	4 8 0	4 4 0	4 0 0	3 12 0	3 10 0	2 12 0
December ..	3 14 0	3 10 0	3 7 0	3 8 0	4 2 0	2 6 0
1938.						
January ..	3 10 0	3 7 0	3 4 0	3 6 0	3 14 0	2 10 0
April ..	3 5 0	3 0 0	2 14 0	3 0 0	3 11 0	2 6 0

9. (b) The reply to 9 (a) being in affirmative, it does not arise.

10. (a) Yes, the steady fall of price of paddy is due to some temporary adverse factors.

(b) The temporary adverse factors lowering the price of paddy have been already mentioned in reply to question 7 (c).

(c) Does not arise.

11. (a) (i) "Restriction of Export Markets" as stated in item (4) in reply to question 7 (c) is an international question, and hence amenable to the control of the Government of India. They should try to obtain favourable terms in the renewal of the Ottawa Agreement.

11. (a) (ii) "Dumping of Burmese Rice" mentioned in item (5) in reply to question 7 (c) is amenable to Government of India are now governed by the India and Burma Trade Regulation Order of 1937 which guarantees free trade between the country for 3 years since the date of separation of Burma. Some restriction on import of Burma rice may be possible, even before the expiry of the prescribed period, if some quota arrangement is put up before His Majesty's Government with the joint approval of the Government of India and Burma.

The first three factors, stated in items Nos. (1), (2) and (3) in reply to question 7 (c) are amenable to control by the provincial Government.

11. (b) No.

12. (a), (b), (c), (i) and (ii) Not known.

13. Not known.

14. (a) Yes, present export duty in rice is one of the factors affecting foreign demand.

It appears from the Review of Trade of India 1936-37 that quantity of rice exported from India and Burma to foreign countries has been materially decreasing during the last few years. Before the Great War the export figure was 23,28,000 tons of rice, but in 1936-37 it has come down to 14,57,000 tons.

14. (b) Yes, as the export duty on rice is one of the causes of decrease in export, it incidentally affects primary marketing. So cultivators are being affected.

Minimum price and improvement of price.

15. (a) The average yield of paddy in different districts of Bengal is not known to me. According to official reports Bengal's figure is 13.5 maunds per acre. The figure for the Hooghly district may be estimated at 19 maunds per acre. (The average yield in my own farm worked out from 11 years' outturn comes to 15.96 maunds—roughly 16 maunds per acre. The Chinsura Farm figure worked out from 10 years' outturn is 21.82 maunds per acre.)

15. (b) and (c) The approximate average cost of production per maund of paddy depends on the cost of cultivation. This cost varies largely in various districts according to the rate of wages of agricultural labours and cost of ploughing. Cost of cultivation and harvesting of paddy per bigha may be estimated as below:—

Operation.			Ploughs and Labour.	Rate.	Amount.
				Rs. a. p.	Rs. a. p.
1. Ploughings	..	..	1 Dry ploughing ..	0 8 0	0 8 0
			3 Wet ploughings including puddling ..	1 0 0	3 0 0
2. Transplantation	..	..	3 Labours ..	0 6 0	1 2 0
3. Weeding	..	..	2 Labours ..	0 5 0	0 10 0
4. Reaping	..	..	3 Labours ..	0 5 0	1 15 0
5. Harvesting (Bundling, carriage to Yard and stacking).	..	..	3 Labours ..	0 8 0	1 8 0
6. Thrashing and winnowing	..	..	2 Labours ..	0 5 0	0 10 0
7. Manuring (Seed-bed only)	..	..	1 Labour ..	0 5 0	0 5 0
8. Miscellaneous	..	..	2 Labours ..	0 5 0	0 10 0
Total cost ..					9 4 0
<i>Add Rent and Cess (According to the Report of the Bengal Banking Enquiry Committee)</i>					1 10 6
					10 14 6
Less price of straw 12 pans ..					0 12 0
					10 2 6

Then Rs. 10-2-6 is the cost of production of 4½ maunds of paddy.

Therefore the cost of production of paddy per maund is nearly Re. 1-13.

16. In determining the fair profit of the grower of paddy, fair price should be ascertained and in doing so following factors should be taken into consideration.

(1) Cost of production.

(2) Allowance to be given for depreciation in the value of the implements and bullox.

(3) Allowance for subsistence for cultivators.

(4) Allowance for loss due to unfavourable climatic condition and pests.

This last factor invariably more or less affects yield.

The average cost of production of paddy per maund has been estimated at Re. 1-13 exclusive of some incidental charges, such as sorting of paddy and stacking of straw, etc. Besides the above factors, as 88 per cent. of the total cropped area in Bengal is annually placed under paddy, which being both food and cash crop, constitutes the main support to the entire economic fabric of the country. The welfare of more than about 88 per cent. or more of the total population in Bengal is directly or indirectly dependent on a thriving trade in rice.

Considering the above factors, and facts, I am of opinion that fair price of paddy should not be less than Rs. 2-8 in primary markets, *i.e.*, approximately 25 per cent. of the total cost required for cultivating 1 bigha of land.

The economic price should be always a little above the cost level. I think Rs. 2 to Rs. 2-4 should be the economic price per maund in primary markets.

17. Yes, cultivators' margin of profit can be increased. In view of this end following measures should be adopted:—

- (1) Compilation of rice statistics for both production and consumption and publication of the same in primary markets.
- (2) Establishment of bonded Warehouses in all important rice centres in various districts.
- (3) Raising the price of jute.

These are within the scope of the Provincial Government. The India Government should be moved for providing following measures for help:—

- (1) Reduction of railway freight on paddy and rice.
- (2) A substantial reduction of the prevailing export duty on rice.
- (3) Restriction of import of Burma rice to a specified maximum.
- (4) Obtaining more favourable terms for export in the renewal of Ottawa Agreement.

18. Yes. Bigger outturn can be obtained by better methods of cultivation. Please *vide* the extract from Sir John Russel's Report quoted with reference to the reply to question No. 6 (c).

19. (a), (b) and (c) Yes. I think the minimum prices should be fixed for the present. It should be fixed on the basis of economic prices according to different grades of paddy. The fixation of minimum price should be maintained till the revival of normal conditions, *i.e.*, when the minimum price will be voluntarily offered by the buyers.

20, 21, 22 and 23. Cannot reply.

24. In the district of Hooghly there is no difference between the price for paddy paid to the cultivator and the price paid by the miller. Here middlemen buy paddy from cultivators on payment of cash price and sell it to millers at the same price at credit, for which they receive commission from the millers at one anna six pies per maund. The price and the commission is not paid to the cultivator as he is paid in cash.

25. This question does not arise, here, as middlemen do not intercept any profit from the price paid to cultivators. Further the middlemen perform essential function in speedy disposal of cultivator's commodities. It would be unfair and not possible to dispense with middlemen. If, of course, there exist abuses, these should be remedied.

26. (a) Pledging of crops before harvest is now not in vogue owing to uncertainty of market prices due to depression. Further buyers, now apprehensive of the results of the workings of the Bengal Agricultural Debtors Act, are not advancing money to the growers.

26. (b) This question does not rise for the present, as the practice of pledging crops before harvest is now out of date.

In some cases it did affect the price and in some cases did not; in the latter case advance was made on the agreed term of supplying commodities exclusively to the person who advances money at the prevailing rate of market.

27. Here the standard weight for paddy sale is 80 tolas equals to 1 seer; 40 seers equals 1 maund. But in excess, paddy of $2\frac{1}{2}$ seers per maund is taken by middlemen which they are to give to millers or to wholesale purchasers. But the rate of this excess varies in different places of one and the same subdivisions of a district. As for instance the rate for the excess as mentioned above is prevalent in certain parts of the Hooghly Sadar Subdivision while it is $\frac{3}{4}$ seer in some places of the Serampore Subdivision. Uniformity is required.

Marketing.

(Indian Market.)

28. (a) and (b) For reply to this question please refer to the reply to question 24. Only this system of sale by cultivators is known to me. I do not know if there are any other system.

While it appears that cultivators under the system of sale as mentioned in reply to question 24 are getting the same price, both by direct and indirect dealings, I think the system is satisfactory at present.

28. (c) Does not arise.

29. Besides the allowance in kind mentioned in reply to question 27, I do not know if there are any further allowances in cash or in kind.

30. (a) An All-India uniform standard of weights and measures should be fixed and tola (weight of a rupee) should be the basic weight.

31. (a) Grading paddy and rice is roughly based on some particular types of paddy according to length such as Jhingasal in this part of the country which is a type of long variety of paddy. Nagra of Chinsura No. II are the types of medium paddies and so on.

31. (b) Yes, I think a standardisation of grades should be enforced.

32. Yes, prices prevailing in Calcutta wholesale market do affect the prices of the cultivators. For fluctuations in the final marketing has co-relation with the prices in primary marketing.

32. (c) Cultivators have no direct means of knowing fluctuations in prices. Their sources of information are the local purchasers. This kind of source is always deceptive.

32. (d) Yes, information regarding fluctuation of prices in the market should be anyhow conveyed to producers by means of Broadcasting arrangements.

Regulated Markets.

33. (a) It is hoped that cultivators marketing problems may be solved by establishment of regulated markets under legislation.

33. (b) The area over which such markets will operate may be determined according to the production and demand of the commodities grown in that particular area.

33. (c) The site may be selected by small committees consisting of—

- (1) Any Subordinate Revenue Officer authorised by District or Subdivisional Officer.
- (2) Marketing Officer.
- (3) District Agricultural Officer.
- (4) One representative from Co-operative Societies within the local area.
- (5) Union Board President.
- (6) Actual cultivator's representatives.

33. (d) Marketing Committee may be formed as stated below :—

- (1) Representative of the actual cultivators of the area under the market.
- (2) A representative from Co-operative Societies within the area.
- (3) Local Union Board Presidents.
- (4) District Agricultural Officer.
- (5) The Circle Officer of the area concerned.
- (6) Buyers' representatives.

33. (e) Cannot say.

33. (f) Yes, it will be necessary to prohibit dealing outside such markets, regulated markets are likely to attract buyers and sellers.

Communications.

34. (a) Yes, existing means of communication in country-side hampers marketing.

34. (b) Yes, charges for conveyance of paddy and rice from mufassil to wholesale market are excessive. Further reduction of rate in railway freight, etc., is desirable.

M. SINHA ROY,

Vice-President,

Hooghly District Agricultural Association.

The 31st October, 1938.

**Extracts from the Note of Professor P. J. Thomas on Improvement
of Indian Rice Statistics.**

The Professor recommends the following measures :—

1. A crop census must be taken every five, at least ten years, somewhat on the lines of the American crop census, with modifications, to suit India's peculiar conditions. The use of random (preferably stratified) sampling is essential. This may form part of the economic census recommended by R. Bowley and Mr. Robertson. Once a thorough census is taken it will be easy to estimate production in the intercensal years.

2. If the periodical crop forecasts are to be reliable, we must provide for a more competent agency to collect primary data, even in the temporarily settled tracts. As early as 1870, the Famine Commission urged the need for training village accountants and recommended the appointment of a special officer in every district to supervise their work and to "look after the agricultural well-being of the people". Little has been done in this direction. There is a growing opinion that if rural uplift is to progress rapidly trained rural guides who will be in active contact with the villages are needed. The Madras Economic Council has adopted a recommendation for appointing rural guides in groups of 5 to 10 villages, under the supervision of District Economic Councils. Such a guide can be entrusted with the collection of primary data regarding crops, and by a judicious use of sampling, his work can be kept within reasonable limits. The point which must be emphasised here is that such a new functionary is needed, as much in the interest of good statistics as of rural uplift, and that the additional funds required will be profitably spent.

N. C. MEHTA,

Secretary.

NEW DELHI,

The 20th January, 1937.

**Memorandum of Imperial Council of Agricultural Research Rice
Committee Meeting (January 1937).**

Subject No. 19.

The improvement of statistics of rice production.

The area under rice in India is about thirty-five per cent. (81·5 million acres) of the total cultivated area. The Chief British Provinces growing rice are Bengal, Bihar, Orissa, Burma and Madras though the crop is grown in almost all the Provinces and States. Usually there are three crops of rice (1) Winter rice, sown between May to August and harvested between December to January, (2) Autumn rice, sown from May to June and harvested in September, and (3) Summer rice, sown from January to February and harvested in May and June. In Madras, however, the seasons vary greatly, the first crop being sown between April and October and harvested from September to March and the second crop being sown from September to March and harvested from January to May.

2. Three All-India forecasts are being issued by the Director-General of Commercial Intelligence and Statistics about the 20th October, the 20th December and the 20th February, respectively, though each province has its own interim forecasts. The first forecast is based on reports from provinces and states which comprise about 96 per cent. of the total rice area in India, and it gives areas only of autumn and winter rice. Information regarding the summer crop is included only in the third (final) forecast issued in February. The second and third forecasts give estimates of outturns also. In the third and final forecast all the reporting provinces and states (comprising about 97 per cent. of the total rice area) are included. Rough estimates of area and production from minor rice growing tracts (e.g., Punjab, North-West Frontier Province, Ajmer-Merwara and some Indian States) are also given in this final memorandum.

3. The Imperial Council of Agricultural Research has at present under examination the question of possible improvements in the statistics of agricultural production with a view to remedy the defect in the methods adopted by primary reporting agencies. The question in so far as it relates to rice is now for the consideration of the Rice Committee.

4. The annual production of each crop is estimated from the formula—Area \times standard yield \times seasonal condition factor.

In the temporarily-settled provinces the first factor, area, is known with very fair accuracy and the area statistics for Madras, Bombay, the United Provinces, Punjab, Central Provinces, North-West Frontier Provinces and Sind are reasonably satisfactory. The same cannot however be said of the second factor, standard yield. Only for one crop, cotton, has it been possible really to check the accuracy of the statistics of production and there it has been found that the standard yields are substantially too low. The Royal Commission on Agriculture in India recommended that the standard yield should be revised after a proper number of randomised crop cutting experiments had been carried out. This is now necessary; the changes in agricultural practice since the War and especially the introduction of improved varieties of crops makes it necessary that all standard yields should be properly revised.

4. The seasonal condition as the most difficult factor of the three, and improvements can only take place if there are proper provincial statistical staffs. It would be useless to try and teach Patwaris and other village reporters the meaning of a theoretical normal. All that can be done is to interpret the "annawari" estimates as carefully as possible. It is now recognised that no agriculturist will admit to a 16 annas crop unless the crop is really a bumper one and that a normal crop is represented by 12 to 13 annas in village parlance. Some years ago a comparative study in the Madras Presidency of the returns received from different patwaris enabled a much better estimate of the seasonal condition factor to be made. Much more might be done in this direction.

5. In the permanently-settled provinces—Bengal, Bihar and Assam—there are no village accountants and the areas are actually recorded only at settlement. In these cases it would be perhaps feasible to carry out a sampling survey in a limited number of villages in each subdivision of a district, the village being selected at random and a proper enumeration of crops made both in Kharif and Rabi seasons. The costs should not be prohibitive and this would enable one to get some idea at least of the present degree of inaccuracy. The cost of a survey of this character would depend very largely on the extent to which it is found possible to utilise the incorrect village maps. If map correction is necessary to any great extent, the cost would be greatly enhanced.

6. The difficulty of proper estimates of the seasonal condition factor is greater in a permanently-settled province than in a temporarily-settled one because there is no revenue staff in the former; but if reasonable estimates can be made of the area it will then be possible to set up a system of honorary crop reporters. Given reasonably strong statistical departments in the provinces, there are many ways in which estimates of the seasonal condition factor can be improved.

7. Work on suitable methods of crop cutting experiments has been done by the triangle method by Sir John Hubback (now Governor of Orissa) when Director of Land Records. Recently in the United Provinces a new method based on a system of random sampling has been evolved. This is still being developed with the advice of statistical experts including Mr. Yates of Rothamsted, and is considered to be capable of giving a fairly accurate measure of yield under the conditions prevailing in a particular year.

8. Recently the Wheat Committee of the Imperial Council of Agricultural Research while considering the improvement of statistics of wheat production recommended that (i) Local Governments should be invited to put up definite proposals for improving the statistical organisation and (ii) all provinces should undertake a system of carefully planned randomised crop cutting experiments over a period of years with a view to ascertaining the standard yields (extracts attached). These recommendations apply *mutatis mutandis* to the rice crop also.

N. N. MEHTA,

Secretary.

NEW DELHI,

The 23rd December, 1936.

Parbatipur Co-operative Paddy Sale Scheme from Registrar of Co-operative Societies, Bengal.

A scheme for linking up agricultural credit society with sale society for profitable marketing of the agricultural produce of the members of credit societies by elimination of middlemen profit and by providing facilities for holding on crop for better market.

A resolution was passed in the 12th conference of the Provincial Registrars held in Delhi in December 1936 that an attempt should be made in all provinces to take steps for marketing of the agricultural produce of the members of primary credit societies in collaboration with the central financing banks which are required to advance short-term loan to these societies for raising crop. With a view to implementing this resolution it is proposed to organise a sale society as an experimental measure in a suitable area where the financing bank is willing to link up its activities with those of the sale society for improvement of collection of its dues as also as a measure intended to increase the income of the members of the societies by profitable marketing of their produce. To be cautious the area should be selected carefully and a place generally subject to devastations from natural causes should be avoided.

Accordingly, in consultation with the Assistant Registrar, Rangpur Division, it was decided to start a sale society in the Parbatipur area of the Dinajpur district. A conference of the members of co-operative societies and other cultivators in this locality was held on the 18th August 1938 which was attended to by the Subdivisional Officers of Dinajpur and Balurghat. The Secretaries of the Bengal Co-operative Organisation Society, Ltd., the Dinajpur, Balurghat and Thakurgaon Central Co-operative Banks and the Deputy Chairman, Nilphamari Central Co-operative Bank, also attended the conference. The District Magistrate was present at the informal discussion which was held at the Parbatipur Dāk-bungalow in the morning of the conference. The scheme was explained to the members of the co-operative societies and others present including representatives of the local rice mills. It was unanimously decided that a sale society be organised and the cultivators present agreed to deliver their paddy to the warehouse of the proposed society on a contract basis immediately after the harvesting season. The scheme may be briefly stated as follows:—

The Parbatipur area which is proposed to be the area of operation of the sale society consists of four thanas, viz., Parbatipur, Chirirbandar Nawabganj and Ghoraghat. Paddy is the main crop in the whole of this area. The area is immune from flood or any other atmospheric calamity. The outturn of paddy is generally normal. In my opinion, this area is very satisfactory from all points of view for making an experiment of a sale society in co-ordination with the Dinajpur Central Bank which is keen for the success of the society.

There are at present 112 co-operative societies spread over the four thanas. All the societies are affiliated to the Dinajpur Central Bank from which they receive advance of short-term loan for ordinary agricultural operations. The membership of the societies is at present about 2,500. The Bengal Provincial Co-operative Bank, Ltd., has recently advanced Rs. 20,000 to the Dinajpur Central Co-operative Bank for loaning out to the members of these societies as short-term crop loan. It is proposed for the present to handle the paddy crop

of the members of these societies and other cultivators who will voluntarily seek admission to the sale society without being member of any of the existing credit societies.

The sale society would be on limited liability basis with a nominal share capital of Rs. 1 lakh. The value of each share is Rs. 5 payable in 10 equal annual instalments. Every member of the society whether he is a member of a credit society or an outsider will have to purchase at least one share of the society. Every member will have to enter into a contract with the society to deliver his produce to the warehouse of the society after the harvesting season according to the quantity laid down in the contract. The contract will be signed by the members of credit societies at the time of taking advance from the Central Bank and by other members before the commencement of sowing. Those who have already taken crop loans should be induced to enter into contract now for delivery of their produce. It should be provided in the contract that if any member fails to deliver the stipulated quantity to the warehouse of the society he will be liable to make good any loss which the society is likely to suffer in its profit due to non-compliance of the terms of the contract. Such a provision should also be incorporated in the bye-laws of the society. The financing bank while advancing short-term loan to a member of a society located in this area will also make a condition that he will deliver his produce to the sale society according to the terms of his contract with that society and authorise that society to repay his debts to the financing bank out of the sale proceeds of his produce. On the above conditions the financing bank will promptly advance short-term loan before the cultivation season to the members of the societies at a specified rate say five to ten rupees per bigha of land under paddy cultivation. A statement indicating the amount of loan advanced to each individual member with acreage on which he proposes to grow paddy should be furnished to the sale society by the financing bank. I insist on the promptness of making this advance as otherwise it will not be possible for the members to raise the crop in proper time and make repayment of their loans.

The duties of the sale society are mainly three-fold. In the first instance, it will see that proper advances are made by the financing bank just in time for cultivation purpose. As soon as the advances are made the staff of the sale society will go to the villages and examine whether the loans received by the members from the financing bank are utilised for the purpose for which they have been taken. He will also see that the cultivators grow paddy upon sufficient quantity of land that will enable them to repay their debts. He will further examine the seeds and if necessary provide facilities for their obtaining seeds with high percentage of germination. Briefly, it will be one of the most important duties of the staff of the sale society to help the members in all possible manner to grow their crop and to supervise the cultivation and the growth of the crop. The sale society will be constantly in touch with the Agricultural Department for expert advice in this connection.

The next duty of the sale society will be to supervise the harvesting of the crop. It is often seen that when there is a bumper crop the cultivators do not work themselves but engage hired labourers for harvesting. This practice must be stopped. Every cultivator and any able-bodied dependent in his family should be induced to harvest paddy themselves. After the crop is harvested and prepared for the market

the staff of the sale society will arrange for the delivery of the crop to the warehouse of the society. Each member will bring his contracted quota to a particular place preferably to a central place or in the house of the Secretary or Chairman of the Credit Society, and from there the entire quantity collected should be carted to the godown of the sale society. If any member desire to bring his produce himself to the society there may be no objection. The paddy delivered by the members will be accepted on general estimation as to the quantity. A receipt under the signature of the officer accepting the paddy will be given to each member which will indicate the quantity received from him, quality of the crop and the estimated price. This estimated price shall be fixed in consideration of the market price on the day of delivery. The crop delivered by each member should be accurately weighed in presence of an officer of the society. Any kind of deception in this respect as is now prevalent among the paddy dealers should be scrupulously avoided. A slight excess over the actual weight may, however, be taken as decided by the Committee of Management of the sale society or local panchayets to make good the dryage and wastage during the period between delivery and the ultimate disposal of the produce. It should be the look-out of the sale society staff to win the confidence of the members of the society by perfect honest dealing and it would also be their important concern to see that all transactions are done in a friendly spirit. It must not be forgotten that the success of the sale society will depend upon two very important factors, viz., honest dealing with, and more profit to, the members.

Finally, the duty of the sale society is to dispose of the produce collected from the members to their best advantage. This is undoubtedly a very difficult task involving a great deal of responsibility and discretion. The collected paddy will have to be assorted and graded in the warehouse of the society as early as possible after delivery. The officer-in-charge of the sale society will study the market constantly and enter into negotiation with local mills for disposal of the graded produce in his possession. In the first instance, he should not hold on to the produce in a speculative spirit. He will dispose of them as soon as a reasonable profit is obtained. If there is a slump in the price he will call a meeting of the Managing Committee and consult their opinion regarding disposal. He will constantly inform them about the fluctuation of the market and should not lose any opportunity of profitable market. Ordinarily I think the produce should be disposed of in 3 weeks or a month's time. If for any unforeseen reason the produce has to be held on for a longer period it may be necessary to advance part payment on account to the members. This payment may be made on the basis of estimated price on the date of delivery. For this purpose the sale society will apply to the financing bank or to the Bengal Provincial Co-operative Bank, Ltd., for cash credit on the security of the stock in hand. I do not think there will be any difficulty to get this cash credit at least up to 50 per cent. of the value of the stock. As the produce will be disposed of it will be the duty of the sale society to pay off the cash credit first, if any, and then to make payment to the members after deducting the short-term debts which are due from them to the financing bank. This payment will also be made on the basis of the estimated price on the day of delivery. It does not appear feasible to pay to the members according to the grades of their produce for it is impossible, at least for the present, to grade each member's produce. The price settled

on general estimation and bonus from the net profit will, I hope, satisfy them. Ultimately at the end of the season when all produce has been disposed of and the members fully paid off an account will be made up showing the profit and loss of the society. The net profit of the society shall be distributed in the form of bonus among the members after providing for Reserve Fund according to the quantity of paddy supplied by each member.

It is worthwhile to describe here the present position of the sale of paddy by cultivators in this locality and what benefit they are likely to gain by joint sale through the sale society. The price of paddy during and immediately after the harvesting season prevails at annas 14 to Re. 1 per maund. The price goes up gradually and after 2 months the price is often seen to be Rs. 1-4 per maund. It further rises with time and reaches Re. 1-6 per maund. The cleaned paddy as a measure of grading gets annas 2 more than the uncleaned paddy of the same variety. There are two middlemen between the producer and the mill, namely, the Fariahs and the Aratdar. The aggregate profit of these middlemen is estimated to be not less than 4 annas per maund of paddy supplied by them to the mill. The society aims at eliminating the middlemen's profit and give the benefit of the same to the actual producers. It is expected that after meeting the overhead charges the society will be able to pay to the actual producer at least 2 annas more per maund of paddy delivered by him than what he is getting at present.

The Committee of Management of the Society will be nominated by the Registrar for the first three years or such shorter period as he desires. It will consist of 9 members of which 2 will be representatives of the Dinajpur Central Co-operative Bank, 3 representatives from individual members and 4 nominated by the Registrar. As this is a business concern and immediate decision may be necessary in the disposal of the stock, a Working Committee with 3 members of the locality will be formed.

I should reiterate that the success of the sale society will mainly depend, if not wholly, on the effective supervision during the sowing and harvesting season as also on the collection of the resultant produce and the loyalty of the members to fulfil the contract. The duties of the staff of the sale society will be very arduous and exacting for at least 6 months in the year. The sale society will, therefore, appoint only such men as will be ready to remain constantly in the interior of the villages during this period.

As I have stated above, it may be taken that in the first year the sale society will be able to warehouse paddy from 2,500 members of village societies and from about 500 outside members. Thus, altogether 3,000 members are expected to deliver their produce to the society's godown during the next winter months. On a modest calculation it may be expected that each member on an average will deliver 10 maunds of paddy and the society will be in a position to deal with 30,000 maunds of paddy. The loss and profit indicated below is, therefore, calculated on the transaction of 30,000 maunds of paddy in the current year.

Trading Account (Estimated).

Dr.	Rs.	Cr.	Rs.
To sales 30,000 maunds at Re. 1-4 per maund.	37,500	By purchases 30,000 maunds at Re. 1 per maund.	30,000
To customary excess for dry and wastage at 2½ seers per maund 1,875 maunds at Re. 1-4.	2,344	By gross profit ..	9,844
	<u>39,844</u>		<u>39,844</u>

Revenue Account.

	Rs.		
Dr.—To Establishment charges ..	3,180		
1 Manager (50 × 12 × 1) ..	600		
1 Head Supervisor (30 × 12 × 1).	360		
2 Supervisors for 6 months (2 × 15 × 6).	180		
10 Collection Sarkars for 6 months (10 × 12 × 6).	720		
2 Durwans (2 × 15 × 12) ..	360	By gross profit ..	9,844
1 Packer (15 × 12 × 1) ..	180		
2 Packers for 6 months (2 × 15 × 6).	180		
1 Weighman (15 × 12 × 1) ..	180		
2 Weighmen for 6 months (2 × 15 × 6).	180		
1 Accountant (1 × 20 × 2) ..	240		
	<u>3,180</u>		
To rent for warehouse ..	240		
To contingencies ..	120		
To cost of transit at 6 pies per maund.	1,012		
	<u>4,552</u>		
Net profit ..	5,292		
	<u>9,844</u>		<u>9,844</u>

Replies from Mr. Amulya Dhan Addy to questionnaire on paddy.

I am in receipt of your letter No. D.-O. 160-435, dated the 13th October last, with a list of questions in connection with production of rice and paddy in Bengal. I do hereby give a reply to as many questions as may be possible for me. I do submit my additional notes to you as Item No. 39.

1. I understand that the annual outturn of paddy is estimated by Chaukidars and submitted through union boards and Chaukidari Committees. The estimates mentioned appear to be satisfactory, as members of union boards are expected to have fair knowledge of the outturn of paddy, but it can be further improved if some remuneration

is paid to the boards for additional staff if necessary. I recommend also estimating by random samples, that is to say by taking the outturn of paddy for specified areas, selected at random.

2. It is necessary to compile accurate statistics of inter-district movements of paddy and rice, but the cost thereof would be prohibitive. However, we can get an idea of the same on reference to the statistics of Railway and Steamer Companies.

3. It is necessary to obtain accurate statistics of the outturn of an area under paddy and demand for the same but heavy expenditure need not be incurred for the same.

4. I do not think the existing statistics of imports and exports of paddy and rice from and to other provinces of British India without Burma are accurate. The present method may be improved but heavy expenditure need not be incurred for the same.

5. Statistics of stocks of paddy and rice may be obtained from the union boards in rural areas and from municipal Boards of Calcutta and other urban areas. The cultivators being illiterate may hesitate to notify stocks of paddy and rice. Legislation for the said purpose is unnecessary. However, the statistics may be had as in the case of census of population.

6. As it appears from the report of the Crop Planning Conference submitted to the Government of India in 1934—in Bengal there is a deficit of 125 thousand tons of rice per annum which is made good by imports chiefly from Burma. It may be noted that in the Province of Bihar, Orissa and Assam there is a deficit of rice, but in the Madras and Bombay Presidencies and in Sind there is no such deficit. The said deficits are made good by imports of rice from Burma which produces 7 to 8 million tons of rice, half of which is exported therefrom. It is most desirable that the said deficits should be met by increased production. I do therefore beg to suggest that the following steps be taken for the said purpose.

(a) *Establishment and maintenance of agricultural schools in several parts of rural areas of Bengal.*—This should be done by the Government of Bengal direct. To grant primary, general, agricultural and cottage industrial education, in my opinion, is the primary duty of a Provincial Government. The agricultural schools should be provided with agricultural farms, just as a hospital is attached to a medical school and a workshop is attached to an industrial school.

The estimated average outturn of paddy in Bengal is 458 lbs. or 5½ mds. per bigha. It appears from a Review of the Trade of India that the yield per acre of clean rice in India varies from 648 to 1,580 lbs. which compares very unfavourably with Japan. Japan Government spends very large sums of money in developing rice cultivation in Korea.

(b) *Use of manure.*—Japan imports heavy quantity of bonemeal from India for cultivation of agricultural produce, but it is regrettable that India rarely utilizes even cowdung as manure. It is used as fuel and nothing can be a greater economic loss than this, having regard to the fact that there is an ample supply of wood and coal in Bengal, Bihar and Central Provinces for fuel. A person using cowdung as fuel in rural areas should be fined by legislation.

7. It is from paddy that rice is manufactured. Sixty seers of paddy produce $37\frac{1}{2}$ seers of *atap* rice, 40 seers of fine boiled rice and $42\frac{1}{2}$ seers of coarse boiled rice. The exact quantity of rice produced also depends on the quantity of paddy as in years of drought the outturn is less and in those years in which there is a proper distribution of rainfall, the outturn is more than the normal one.

8. The price of paddy depends on the price of wheat and other food-grains. If the price of wheat goes up materially, some people though not all, will consume rice instead of flour. If there is a bumper crop in millets, the poor people are not likely to eat rice or wheat.

9. The prices of paddy and rice have been falling steadily since the termination of the last war and specially during the last four years. The price of Seeta rice No. 1 in the month of January 1936 was Rs. 5-1-6 per maund and in the month of January 1937 it came down to Rs. 4-8 per maund and in the month of January 1938 it further came down to Rs. 3-10 per maund. In case of Nagra boiled rice in the month of January 1936 it was Rs. 4-7 per maund; in the month of January 1937 it came down to Rs. 3-12 per maund and in the month of January 1938 it further came down to Rs. 3-6 per maund. In case of Kazala rice which is coarse rice and generally consumed by the poor—in the month of January 1937 it came down to Rs. 2-12 per maund and in the month of January 1938 it further came down to Rs. 2-10 per maund.

It appears from a Review of the Trade of India that in April 1913 the price of Seeta rice was Rs. 6-6 per maund but in April 1934 it was Rs. 3-11 per maund.

In Rangoon the price of the big mill special rice in the month of April 1914 was Rs. 330 per 100 baskets of 75 lbs. each but in the month of April 1937 it came down to Rs. 250 per 100 baskets of 75 lbs. each. On the 9th of November 1938 the price of big mill rice in Rangoon came down to Rs. 204 per 100 baskets which corresponds to about Rs. 2-5 per maund. The price of paddy in Rangoon on the 9th November 1938 was only Rs. 79 per 100 baskets of 46 lbs. each which corresponds to Rs. 1-7 per maund.

The price of paddy follows the price of rice but due to depression of trade, commerce and industry, the price of paddy has been even lower than the corresponding price of rice.

10. The causes of steadily fall in the price of rice are as follows: as will appear from the Interim Report of a Committee appointed by the Government of Burma, 1932, to enquire into rice and paddy trade of Burma.

(a) Principal factor in fall of price is relative scarcity of supply of money. Forty per cent. of gold used for money in the world is now in the United States of America. It is not available as it used to be, for settling commercial transactions between countries other than the United States; it is lost from circulation and the result of subtracting it from the available supply must be a fall in the general level of prices.

(b) The large contractions of currency made since 1927 in order to maintain the level of Exchange have tended to depress the general price level and with it the prices of paddy and rice. The stabilisation

of rupee at 1s. 6d. has checked the export of rice; the foreigner has to give more of his money than before to obtain the same number of rupees and so his buying power is curtailed.

(c) Imposition of heavy rates of duty on the import of rice from India and Burma in foreign countries, as follows:—

- (i) Ceylon, Re. 1 per cwt.
- (ii) Australia, 1d. per lb. *plus* 10 per cent. *ad valorem* duty.
- (iii) Cuba 2.40 dollars per 100 killos.
- (iv) Netherlands, 10 per cent. *ad valorem* duty.
- (v) China, 1.65 gold unit per 100 killos.

The result of the said import duties will appear from the following:—

Export of rice from Burma to—

			1931-32. Tons.	1935-36. Tons.
Germany	..	..	324,000	3,660,000
Netherlands	..	..	174,000	3,667,000
Belgium	..	..	56,000	8,000
Cuba	..	..	66,000	23,000
Egypt	..	..	85,000	12,000
Java	..	..	63,000	4,000

It may be noted that imposition of heavy duty on the import of sugar from Java has seriously affected the sugarcane cultivation in Java where sugarcane has been substituted by paddy and the demand for Burma rice in Java has materially come down.

11. Representation may be made through the Government of India to the Government of Germany, Netherlands, Ceylon, Australia, Cuba and China to materially reduce the import duty on Burma and Indian rice. It may be noted that the Government of India has imposed heavy rates of duties on the imports of foreign goods into India. With a view to secure the above concession representation may be made to the Government of India to reduce the rate of import duty on foreign goods to a certain extent without seriously affecting the Indian industry, as it will increase the price of agricultural produce of India and reduce the price of imported goods such as clothes and salt which are necessities of life of the tillers of Indian soil.

12. The following appear to be some of the causes for abnormal fall in prices of paddy and rice in India.

(a) Import of rice from Siam to India in 1931-32, 5,117 tons, in 1935-36 2,00,364 tons. It has now come down due to imposition of duty of annas 12 on broken rice. The import of rice from Indo-China to British India—in 1932 10,923 tons, in 1934 it was 1,02,396 tons. It has now come down on the above ground.

(b) In 1936-37, 16,21,000 tons of rice was imported from Burma into India. India is now practically the dumping ground for Burma rice as export of rice from Burma to foreign countries has materially come down.

13. Enforcement of payment of land revenue on or before the 12th of January, of every year and enforcement of sale of estates by public

auction are some of the causes for low prices of paddy and rice as the cultivators are under the painful necessity of selling off their paddy at reduced rates.

In Burma 15th February of every year was the last day of payment of land revenue, but on the recommendation of the said Committee the last day of payment of land revenue has been postponed to the 15th March.

I admit that Burma crop is harvested about a month late but if the last day of payment of land revenue in Bengal is extended up to the 15th of February, it will give some relief to the cultivators who shall be able to sell their paddy at higher rates.

14. The export duty on rice should be abolished as early as possible. I fail to understand as to why out of all food-grains of India, rice should be singled out for the imposition of export duty. It was 3 annas per maund. It has been reduced to 2as. 3p. per maund and I am strongly of opinion that it should be abolished altogether. I admit that it will cause some loss of revenue to the Government of India but it would be nothing in comparison with the benefit which will be derived by the cultivators of India. The said loss may be recouped by the imposition of duty in the import of rice from Burma.

The quantity of rice which was exported from India to foreign countries in 1913-14 was 585 thousand tons, but it has materially come down to 216 thousand tons in 1934-35. The abolition of the said export duty is sure to develop export of rice from India to foreign countries.

Representation may be made to the Government of Burma to do the same, as on the memorial of the Burma Chamber of Commerce, recommended by the Government of Burma, the Government of India has been pleased to reduce the rate of duty on the export of rice.

15. The average yield of paddy per bigha in India is $5\frac{1}{2}$ maunds. The cost of production depends on manure, seeds, rent, bullocks and values.

16. It will suffice if the cultivators get a profit even 2 annas per maund. It may be noted that the wages of the cultivators and other members of their families must be counted in ascertaining the cost of production of paddy.

17. The profit of the cultivators in paddy can be increased by taking the following steps:—

(a) Abolition of export of rice to foreign countries.

(b) Restriction in the import of rice from foreign countries by imposition of duty, namely, 4 annas per maund on Burma rice as well as Re. 1-4 per maund on rice and 12 annas per maund of paddy as recommended by the Committee of the Government of India, 8 annas per maund on broken rice imported from Siam, Siagon and Indo-China. It may be noted that existing rate of duty on the import of foreign broken rice at 12 annas per maund should be reduced to 8 annas per maund as it is consumed by the poorest of the poor.

18. The outturn of paddy can be increased by use of cowdung and other manure, use of better kind of plough and specially by maintenance of embankments in the Sunderbans of Bengal. Paddy is generally damaged by flood in Bengal as the condition of the rivers thereof is a deplorable one, and the Government is not taking any step for the re-excavation of the said rivers.

19. It is not advisable to fix the minimum prices for paddy and rice. It may be advisable in case of jute, as Bengal has the monopoly thereof. Germany and Japan have been trying their best to substitute jute by some other fibres but the latter cannot compete with the former as jute is much cheaper than other fibres. Burma and India have not the monopoly of rice. Heavy quantities of rice are produced in foreign countries. The area of paddy cultivation has been increasing in foreign countries due to the imposition of heavy import duties on Burma and Indian rice. Spain fosters her export trade by giving a subsidy on all exports of rice. The duty on foreign rice imported into Italy is prohibitive. It is Rs. 45 a ton.

If the harvest is good and the price falls, the Japanese Government buys from Japanese farmer and carries over a large quantity against the bad year and when the harvest is poor it sells its stock to the labourers at a fair rate and so prevent the Japanese farmer from victimising him by charging an exorbitant price. To assist it in its activities, the Japanese Government regulates import. If the stocks in the country, in the hands of private traders and in its own warehouses, are too small, the tariff on imports is lifted altogether and if a moderate quantity of imports is necessary to keep stocks in the country up to the standard required, a custom duty which in 1927 was approximately Rs. 23 a ton, is levied.

It will thus appear that if the minimum prices for paddy and rice are fixed, it shall seriously affect the export of rice from India to foreign countries. It is regrettable that the Government of India appears to be indifferent in regulating the prices of agricultural produce in India.

In Egypt, £13,00,000 have been spent by the Government in purchasing cotton which is now stored in the warehouse of Alexandria awaiting purchasers.

In the United States of America, the Government has created a fund over 130 crores of rupees from which advances are made to farmers to enable them to hold up their crop till market values advance.

If the Government is pleased to grant adequate agricultural loans on moderate terms and conditions to the cultivators at the time of agriculture and also advance money to them on hypothecation of the agricultural produce of the cultivators, I am sure, the outturn of agricultural produce will materially improve and the price will go up and thus instead of deficit, the poor cultivators shall have surplus and be in a position to pay up the debts to Government and to their landlords. If a minimum price of paddy is fixed, there will be no competition in quality and thus the quality deteriorate.

20-23. *Vide above.*

24. The average difference between the price of paddy paid to the cultivators and that paid by the miller is generally 2 annas per maund but instead of profit, the cultivators suffer losses from time to time as they are under the painful necessity of parting with their goods for payment of their debts to their money-lenders and landlords and for purchasing the necessities of life.

25. Sale of paddy through middlemen is unavoidable. The cultivators cannot be expected to convey their goods from their farms to the markets which are generally situated at a great distance and therefore the middlemen generally purchase paddy from the cultivators and supply the goods to the mills near Railway and Steamer Stations.

26. As the area of a holding is very small, and the quantity of paddy to be conveyed is also small, the cost of transport is comparatively heavy.

27. I do not think different standards of weights and measures affect the price obtained by the cultivators as the cultivators and their buyers know them before making their contracts.

28. The cultivators of small lands generally sell their goods to the middlemen and cultivators of big plots of land generally convey the goods to the nearest market for sale.

29. The cultivators and buyers ascertain the marketing custom or allowances in cash or kind before they make contracts. The prices are fixed accordingly. In the case of paddy the allowance is generally $\frac{1}{2}$ seer per bag of one and half maund. In case of boiled rice the allowance is 1 seer per maund before the 31st of Chaitra, $\frac{1}{2}$ seer per maund after the said date. In the case of table rice it is generally 5 chatak per maund. If the rates of allowances are increased, the prices of paddy and rice are increased accordingly. The said allowance is made to make up loss in weight for moisture.

30. There are several sorts of rice which are exported from India to foreign countries and imported from Burma to India. They are as follows :—

From Calcutta to foreign countries—Seeta rice, gross rice, broken rice, long grained boiled rice, coarse boiled rice, broken rice, etc. table rice, etc.

From Burma to Calcutta—Sugandhi rice, big mill rice, small mill rice, long grained boiled rice, coarse boiled rice, broken rice, etc.

It is quite unnecessary to have uniform weights and measures as the change will materially cause discontentment amongst the cultivators, most of whom are illiterate and conservative.

31. Having regard to innumerable varieties of paddy and rice it is not possible for standardisation of grades thereof. The quality of paddy in one district is different from that of another district and even in a single farm there are several varieties of paddy.

32. The cultivators cannot be expected to know the current prices of paddy and rice paid by millers and exporters, respectively, as most of them are illiterate. It may be noted that in mufassal letters and newspapers are delivered once a week; but the purchasers cannot take undue advantage of ignorance of the cultivators as the tillers try their best to sell their goods at the highest available rates.

33. In view of the door to door competition for paddy crop and heavy indebtedness of the cultivators the prospect of getting regulated markets is not great.

It will cause great hardship on the cultivators if dealings outside the regulated markets are prohibited.

34. Theoretically the formation of a co-operative society is a satisfactory one, but for practical purpose, it is a failure. It is reported that many co-operative societies have been abolished due to heavy losses and want of confidence on the part of cultivators. It may be tried, provided the Government finances the same.

35. The existing means of conveyance in the mufassal certainly hampers marketing to a great extent. There was a time when most of the goods used to be imported by country boats, but due to silting up of most of the rivers, transport has been diverted to Railways.

The condition of roads is a deplorable one, and most of the roads in mufassal are katcha and are not even regularly repaired due to deplorable state of finance of District Boards. It is therefore desirable that the Government should improve the existing roads for conveyance of goods. The katcha roads may be made pucca at a reasonable cost and this is the proper time to do so as money market is very dull, it can be had in the market on interest at 3 per cent. per annum.

I admit that there are steamer services in Bengal, but the rates of freight are very heavy, as there is no competition^c amongst steamer companies, which fix the rates of freight thereof by securing heavy profits to themselves.

As regards Railways notwithstanding representation by the public, the Railway authorities do not think fit to reduce the rates of freight. A few years ago, the East Indian Railway authority having reduced the rate of freight on coal by 10 per cent. for distances of over 400 miles their profit went up by eight lakhs of rupees in the course of a year. A few years ago the Railway Board reduced considerably the rate of freight on wheat. From Layaipur to Karachi, the old rate was annas eleven and pies eight only per maund revised rate annas 6 and pies 10 per maund and as a result of this reduction the price of wheat went up along with the income of the Railway authority.

36. Rice is imported from Burma on CFT terms. It is similarly exported from Calcutta to foreign countries. The price consists of cost, insurance, freight and other charges. Generally the exporters stand guarantee for weight and quality at the port of destination. In case of complaint by the buyer, the dispute is settled by the broker and in failure thereof, by the Local Chamber of Commerce at the port of destination. The standards of quality are generally prepared by the buyers before the harvesting of the crop and after that by the sellers. They are altered from year to year as the quality alters from year to year.

37. The rate of freight on rice in foreign countries is very heavy. The rate of steamer freight from Rangoon to London in 1914 was 1£. 1s. per ton, in 1931, it was 1£. 7s. per ton. It is because there is no competition in foreign steamer service. In Japan, the Government subsidizes the Japanese Steamer Companies for carrying on export trade to foreign countries.

38. It will be better if the Advisory Board of the Government of Bengal encourages the outturn of paddy and gives facility to the import thereof from mufassal to Calcutta and export thereof from Calcutta to foreign countries. The said Board should consist of representatives of tillers, traders, millers, exporters, and Government.

39. In the Sundarbans, the cost of cultivation of paddy is as follows:—

			Rs. a.
5 plough	...	...	2 8
Seed	...	...	0 10
Coolies annas 12 at the rate of 6 per head	...	...	4 8
Rent	...	...	2 0
			<hr/> 9 10

Cost of cultivation of paddy per acre in other parts of Bengal may be Rs. 2 as follows:—

			Rs.
Plough, etc.	...	...	2
Manure	...	...	1
Seeds	...	...	3
Paddling, etc.	...	...	2
Weeding	...	...	3
Harvesting	...	...	3
Storage and thrashing	...	...	2
Repair of tools	...	...	2
Maintenance of live-stocks	...	...	3
			<hr/> 21 <hr/>

The cost of production is Rs. 21 whereas the price of paddy per acre is Rs. 19. This is the figure for a normal year.

It may be noted that in every year the crop is generally less than that in the normal year due to flood, drought and cyclone.

During the last two years, the cultivators have been hard hit due to operation of the Bengal Agricultural Debtors Act, as they cannot get loan from the money-lenders and even from their landlords as debt include rent under the said Act.

It appears from a Review of the Trade of India that in the year 1928-29, the value of rice in Bengal was Rs. 1,71,35,00,000 in 1932-33, Rs. 64,64,000. The fall amounts to just over 61 per cent. of the year 1928-29 total.

It will further appear that the quality has come down by 3/4th and value by 4/5th.

I admit that the increment in the price of rice will affect the middle class Bhadrалоkes of India, but it may be noted that 90 per cent. population of India depends on agriculture directly and indirectly.

I also admit that the Government of Bengal has been trying its best to grant relief to the tillers of soil by enactment of Bengal Money-lenders Act and Bengal Agricultural Debtors Act and by amendment of Bengal Tenancy Act, but the remedy appears to me to be worse than the disease, as even all the debts of the cultivators are wiped out, the condition of the tillers will not improve unless and until there is an increment in the prices of agricultural produce.

With a view to raise the price of Indian wheat, the Government of India was pleased to levy a duty on import of foreign wheat and flour at Re. 1 per cwt. in 1936 but it has since been abolished. As price of rice depends on that of wheat, it is desirable that the said duty on foreign wheat and flour should be reimposed.

The Indian Merchants' Association of Karachi has just represented to the Government of India to do so, as there was extensive import of Australian wheat into India which has seriously affected the price of Indian wheat and consequently that of rice.

**Precis of Oral Evidence of witnesses recorded
by the Committee in Calcutta.**

Deposition of witness before the Paddy Enquiry Committee.

17th August 1939.

I. *Deputy Director of Commercial Intelligence, Mr. J. N. Ghosh, M.A.*—Their figures relate to rail and river borne trade only, they cannot give the figures of transport by cart or boat.

Burma rice imported into Bengal—1·2 lakhs average import. Madras imports more Burma rice than Bengal. Bengal also exports rice, but in a small quantity. The yield statistics are obtained from the Agricultural Department.

Difficult to say if it will be possible to raise the price by artificial means. By rise in price of jute prices of all other commodities increase.

In 3 out of 5 years Bengal was self-supporting.

Improving the statistics implies improving the statistical organisation in every district.

II. *Mr. Harold Graham, C.I.E., I.C.S., Commissioner, Presidency Division.*—Sunderbans is a surplus area. Generally speaking his is a self-supporting division. 24-Parganas excluding Calcutta, Khulna, Jessore and Nadia self-supporting and Murshidabad deficit.

Statistics based on settlement records. The methods of obtaining statistics very unsatisfactory and their reports are very very approximate. Present price Rs. 2 per maund is not too bad, neither is it a handsome price. Between Rs. 2 and Rs. 2·4 may be taken as a fair price.

As to how to enhance the price, the answer is if the price could be regulated properly. Some of the rice is absolutely first class and if there be honest grading they could be able to capture the market. Cannot see any way of raising the price up. In the Sunderbans the actual cultivators are mostly Bargadars and under-raiyats. They hope to be able to carry on throughout the year with their stock of paddy, but they cannot. They have to sell the crop as soon as it is harvested and many have to purchase again in the latter part of the year. They manage somehow by their labour, selling fish and so on. So increase in price will not help them.

Co-operative stocking may be possible, but without outside assistance it is difficult. We failed with co-operative societies because at that time the market was very difficult and unfortunately the Jute Sale and Supply Societies started at a wrong time, but there is no reason why we should not try this again.

To a question as to whether the supervision at present existing is sufficient the witness says that it should be expanded.

Though the Jute Societies failed, there is no reason whatever why we should not have co-operative societies of paddy growers. I think we are capable of running these societies.

To improve the cultivators' conditions other suggestions are that the raiyats should grow better types of paddy so that they may get better yields. Growing of other crops also suggested.

Does not think there is departmental jealousy. Primary education necessary. There is relation between prices of jute and paddy. Not at all in favour of fixation of price.

Improving the price of paddy means improving the condition of the cultivator by improved methods of cultivation and introduction of other crops.

Improvement in communications is a very important factor, there is no doubt about it.

III. *Mr. H. P. V. Townend, C.I.E., I.C.S., Commissioner, Burdwan Division.*—He does not think that the Patwari system will be of much use. It has not been of much help in the Damodar Canal area.

As regards statistics, he suggests random sampling to be the only cheapest way and this must be done by independent body and must not be left to local people in any share or form. All other methods will be costly. Prof. Fisher also recommended random sampling.

Fixation of price not at all desirable as most of the cultivators are to purchase paddy or rice for their own consumption. Suggests reducing the cost of cultivation by means of, say, irrigation and reduction of rent. According to him random sampling will not be possible without trained men. Improved communications very essential. What he has said refers to West Bengal. As regards East Bengal he cannot say much.

IV. *Mr. A. R. Malik, Senior Marketing Officer.*—Enquiry was made on paddy in 1935-36.

As to the figures on page 9 of his replies, he says that the variation in figures 33 to 100 was due to variation of rainfall obtained from the Season and Crop Report.

As to his replies on page 1 to question 1(c) he suggests one surveyor per thana.

There the Patwari system prevailing in the Punjab. There 1 Patwari in charge of 2 or 3 villages at an average is paid at Rs. 20 to Rs. 25 per mensem by the Revenue Collectors. Patwaris are just like Tahsildars in Khasmahal areas in Bengal. Collection of statistics mostly essential, but in Bengal it is difficult to obtain them. He suggests Zemindars may be made responsible for the supply of these statistics as they have got correct accounts of the lands possessed by them. He suggests that the Zemindars might be made responsible for this by legal means.

He says there is no relation between prices of paddy and jute, as the demands for the two crops come from different sources. He does not think that cultivators will gain by fixation of minimum price. Sometimes, when the crop has passed into the hands of the middlemen, vagaries of weather might lead to fluctuation in price, but by that middlemen only gain, not the growers. In normal years Bengal is a deficit province, the deficit being met by import from outside provinces mainly Burma.

Asked as to how it will affect the cultivators of all classes if the price was fixed by legislation, he says that in that case the middle class possessing large quantities of lands will not suffer, but the

average cultivators who have not got the holding power and must sell their crop for rent and other requirements will suffer a great deal.

Suggests regulated markets and co-operative banks attached to these markets. The warehouses in the regulated markets must be sufficiently strong and locked up against pirates; also they might be insured. At present there are no regulated markets in Bengal. At present the growers are not aware of prices prevailing elsewhere than their own village.*

V. *Mr. Hendry, representative of the Bengal Chamber of Commerce.*—He has considerable experience in Burma. There the cost of production varies enormously in case of hired labour the cost is much more than where the cultivation by the owners themselves. The Chittagonian labourers are paid at Rs. 15 per mensem or 10 to 12 annas per day. Average holding in Burma varies from 10 to 25 acres. Total population in 30 million, and total acreage under paddy is also 30 million, i.e., an average of an acre per head, whereas in Bengal it is only half an acre per head of population. In Burma the average yield per acre is about 1,500 lbs., i.e., almost the same as in Bengal. Cost of cultivation in Burma is much less than in Bengal. Improved implements are used in Burma. Shettun Twin sett is a very useful implement costing about Rs. 27. It is used enormously in Burma and Arakan right up to the Chittagong Hills. This works in inundated soil as well. Effect of tractor cultivation on the soil was nil with a wet crop like paddy. In Burma the average size of a plot is about 5 acres in one field.

Questioned as to how fertilizers could act in East Bengal, the witness replied that the fertilizer does not get away with the running water. Not in favour of raising the price artificially. By putting a ban on the import of Burma rice it may increase the price. In their figures they have taken the price at Re. 1-11 per maund. Cannot say whether there is relation between the prices of jute and paddy. Results of experiments with fertilizers have been very carefully taken.

VI. *Representative of the Bengal National Chamber of Commerce, Mr. A. T. Bhattacharjee.*—To the Chairman's question the witness suggests that Zemindars should be asked for these statistics. He thinks they would be the right persons for supply of correct statistics as they have got correct information as to the lands possessed by them and their raiyats. As regards jute, the trade figure is more reliable, but as regards paddy or rice he thinks zemindars' figures are more reliable because they have got a list of the tenants and the lands under cultivation and, if they are asked, he thinks they will supply the figures wanted. Why should they not? It is for their interest as well. He thinks Zemindars' figures are more reliable than the Choukidars'.

Another suggestion is the establishment of village trading banks.

Also restriction of exports of quality rice.

He does not think it is possible to exploit markets. So far as the trade is concerned, we have no hand.

Price affected by dumping of Burma rice—generally of inferior quality. By "dumping" he means that the low price here is due to the low price in Burma. Import of Burma rice for the last 5 years

varies from 8 lakhs of tons to 145,000 tons. Bengal imports not only for herself, but for other provinces as well. During these 5 years there was partial destruction in some particular areas, and the big jump in 1934-35 (8 lakhs of tons) was probably due to the Bihar earthquake. But as far as he studied the question, the witness says definitely that the imports vary according to prices in Burma. Whenever the price in Burma is low Bengal imports more and whenever the price there is high, Bengal imports less. It is not a question of demand, but a question of price.

The witness would prefer an imposition of duty on the import of Burma rice—not to stop the import altogether.

Bengal is not a deficit province economically, but deficit in the sense that we do not grow as much as we should consume—the witness had calculated on the basis of 1.25 lbs. per capita consumption per day.

Suggests an imposition of duty of Re. 1 per maund of rice and 15 annas per maund of paddy imported. This should raise the price of paddy in Bengal. Unless the growers get a remunerative price why should they cultivate rice which is a staple crop?

VII. *Mr. Gouri Shankar Adhikari, representative of the Indian Chamber of Commerce.*—Price of jute affects the price of paddy. The price of paddy could be improved by improving the quality. That means that the export of rice will improve if the quality could be improved.

The duty of 2½ annas per maund goes to the Central Government.

Fixation of minimum price won't help much. Restriction of import of Burma rice won't affect the price in Bengal. He does not think it necessary to take any action of the import of Burma rice.

Suggests introduction of improved methods of scientific cultivation.

VIII. *Messrs. M. A. Ispahani and M. A. Aziz Khan, representatives of the Muslim Chamber of Commerce.*—They are not satisfied that the present returns as regards acreage statistics are correct. But they think that the figures given as regards outturn are fairly accurate. During the last five years there has been a tendency of the price to go up. (In their statement they have given the mill price only.)

One and a half maunds of paddy for a maund of rice. Milling charge 4½ to 5 annas per maund of rice.

They can't say whether Rs. 2 per maund of paddy and Rs. 3-8 per maund of rice is a fair price.

They state that because Bengal rice is of a better quality it gets a better price in the world market, and a question was raised why in that case should not there be a big export from Bengal. In reply to this the witnesses say Bengal is a deficit province and every year it has to import from outside. The population is increasing and the land is losing its fertility. Manuring is very defective and there is no irrigation system here nor any drainage system. Manuring should be improved and there should be better system of transport. Communications should be improved. Bengal imports 2½ lakhs, exports 1½. So it is a deficit province. Suggest improved yield by introduction of better crops.

Owing to control system of currency, Germany, which used to buy rice from Bengal, now does not. Bengal rates are very high and the price in Burma and Saigon very low.

Prices will not improve until the outturn is increased.

The average price landed in Calcutta would be Rs. 1-12 to Rs. 1-14.

The best quality landed in Calcutta last year was Rs. 2-8 per maund. It is the world price and if it is fair for the rest of the world it should be fair for Bengal.

Milled Burma rice is remilled in London.

They give stress on the quality of rice. If the quality can be improved, export will increase and by this Bengal will benefit.

IX. *Mr. S. Bhar, representative of the Marwari Chamber of Commerce.*—He has no idea as regards the statistics. He does not think that there is any relation between the price of jute and the price of paddy, but the price of jute does affect the price of paddy in this way that if there is an increase area under jute the area under paddy will be decreased, and so there will be an increase in the price of paddy.

In 1934 the price of paddy had a fall because in that year prices of the other commodities also went down. But in his statement he says that the price is steadily falling since 1934, and could not give any satisfactory reply to this point.

The majority of his Committee were of opinion that it was not possible to fix a minimum price, but the witness says that it is possible.

As regards replies to question 11 that improvement in price would be effected by improvement in quality—by this he means that if better quality of rice can be grown then the price will automatically go up.

19th August 1939.

I. *Mr. S. Sen, and Mr. M. M. Singh Roy, representatives of British India Association and Hooghly Landholders' Association.*—To the Chairman's question Mr. Sen replies that the present system of collecting statistical information is not at all satisfactory and suggests that Union Boards should be utilised for this purpose. This should be the only cheap method—any other means will be expensive. Union Boards are the only agency who are directly concerned with rural improvement. Though Union Boards will not serve the purpose so satisfactorily, still it will improve the present method.

Mr. Singh Roy admits that statistics are necessary. He says that chaukidars can approach the innermost part of the village, and collection of figures through chaukidars—though it could not be perfect—is the only possible means until any other scientific methods are introduced. Government should enforce the Union Boards for such information.

The Chairman said that some of the witnesses have suggested that this type of information might be obtained from the zemindars, and asked whether that would be possible. The witnesses replied that this

would not be possible. If the landlords are enforced by law, then that would be a different question. As a matter of fact the zemindars have no direct relation with the raiyats. Under one zemindar there are a host of tenure-holders, patnidars, and under-raiyats, etc. So if they are enforced to collect this information, they will have to engage extra men for this purpose. The information is a monopoly of raiyats only and the zemindars cannot go direct to the raiyats.

The rise in price is only a temporary one. Practically it is steadily falling. Mr. Sen says that their association is of the opinion that the greatest handicap in this respect is that the cultivators are not aware of the prices in the city markets.

The Chairman asked how does the witness propose this information might be brought to the cultivator, and in reply Mr. Sen said that this also could be done through the Union Boards. Government may do it by occasional bulletins published through Union Boards.

As regards helping the cultivators in times of need, the witness says that the whole problem depends on the holding capacity of the raiyat. If loans could be advanced on low interest by co-operative societies, or money-lenders could be induced by legislation to offer loans on low interest, and if the method of cultivation and the productive capacity of the land could be improved, then the holding power of the raiyats will improve.

The Chairman asked whether the witness was going to suggest that provision of capital should be made by the States: the witness replied in the affirmative and said that it should also be seen that regular payments of the debts are assured.

Co-operative societies in America and England are working very well, but in Bengal they are not satisfactory. Marketing Boards on the lines adopted in England might be of some good in this province, but here also he is doubtful as the raiyats are so very ignorant and disorganised.

He thinks purchasing power of the people will increase by an increase in the price of jute.

II. *Mr. A Bhattacharjee, President, Paddy Merchants' Association, Chetla.*—Says that Bengal is a deficit province. According to him purchasing power of the cultivators can be increased only by raising the price of paddy. This can be done by the imposition of a duty on imports of Burmese rice.

He suggests a duty of Re. 1 per maund of rice. He reminds the Committee that the Burma Government have already imposed a duty on Indian sugar and salt arriving in Burma and says that Provincial Governments should follow this example.

He thinks that a minimum price of Rs. 2-7 per maund of paddy will be a fair price.

According to him the present system of marketing was not specially defective. Nevertheless, some improvements were desirable.

III. *Babu Nikhil Chandra Guha, representative of North Calcutta Rice Mills' Association.*—According to him, the low prices for the last few years are due to imports of Burma rice. He also suggests the imposition of a duty on Burmese rice.

He suggests a minimum price of Rs. 2-8 per maund of paddy. The witness does not sell any rice in mufassal market.

IV. Rai Sahib U. C. De and Babu Amulaya Dhan Addy.—These witnesses were against the fixation of minimum price. They suggest a duty on imports of rice and the abolition of the duty on exports of rice.

These witnesses, however, stress the importance of increasing the yield of paddy. Rai Sahib U. C. De suggests the establishment of co-operative societies in limited liability basis.

They also suggest that steps should be taken for distribution of improved seeds through Government agencies in mufassals.

21st August 1939.

I. Mr. P. K. Roy, Inspector of Co-operative Societies and Secretary, Central Co-operative Paddy Sales Society, Ultadanga.—The witness says that the Central Co-operative Society have 12 mufassal societies affiliated to it, of which only 3 or 4 are functioning properly. The business of the Sale Society consists in receiving paddy from the affiliated societies and the members belonging to those societies sell in Calcutta market. The usual practice is to advance 75 per cent. of the supply of the crop as soon as it reaches godowns of the society. They charge a fee of 1 anna 6 pies on account of brokerage, cooly charge, godown hire and everything else. Freight is paid by senders.

Questioned as to the gradual disappearance of *dhenkis* the witness says that he did not think that anybody but widows and a small section of the poorer people were affected by the establishment of rice mills.

He suggested the imposition of a duty on imports on Burma rice and fixation of a minimum price of paddy at Rs. 2-8 per maund.

He also advocated for the distribution of improved seeds and manures.

II. Mr. A. Bhattacharjee, representing Calcutta Rice Merchants' Association.—Questioned as to the displacement of *dhenkis* by rice mills the witness admitted that widows and a small section of the poor people have been affected to some extent. But in view of the enormous services it is rendering to the rice industry, these minor issues might be neglected.

The witness stated that the rice mill industry which was next to the jute mill industry in Bengal in importance and employed a labour force next only to that of mill industry in size was in jeopardy on account of unfair competition with Burma. It was essentially necessary that this industry should be protected. So he recommended a duty on imports of Burma rice. The witness was not afraid of retaliation, because the trade balance was overwhelmingly in favour of Burma peasants.

III. Babu Benoy Kumar Ray, representing Rice Mills Association, Tollygunge.—This witness stated that the association comprised about 50 mills, all in Calcutta. These mills were supplied paddy from 24 Parganas, Burdwan, Dinajpur and Malda and other parts of Bengal. Purchase was made through Beparies and agents in mufassal centres since milling cost is about six annas per maund of rice, while the

present price is about Rs. 2-4 per maund. Price this year has been to Rs. 2 to Rs. 2-2 which was fairly satisfactory.

The witness suggested that a higher price could be secured by the imposition of a duty on imports of Burma rice. At present there was direct correlation between the price of rice at Rangoon and that in Calcutta. They generally move together. This is why it was necessary to impose a duty on imports of Burma rice.

The witness also suggested the imposition of a minimum price of Rs. 2-8 per maund.

IV. Babu Amulaya Dhan Addy.—The witness suggested the imposition of a duty on Burma rice imported into this province but was against the fixation of a minimum price. He said that the latter was a desirable objective but was quite impracticable.

V. Registrar, Co-operative Societies.—The witness described the working of the Central Co-operative Paddy Sale Society at Ultadanga and of the Parbatipur Sales Society at Parbatipur.

Questioned as to the success of these Sales Societies, the witness stated that so far as paddy was concerned, fluctuation in price was far more regular and steadier than that in the case of jute. Hence it was possible to run Co-operative Sales Societies successfully, without much difficulty. The department had recently started a Sale Society at Parbatipur and propose to start similar societies at other paddy growing centres in Bengal.

The witness seems to favour the fixation of minimum price for paddy but in reply to Secretary's question could not state how the practical difficulties in the way could be removed. For the rest the witness was examined mostly about co-operative societies.

IV. Mr. Faizullah Gangjee of Messrs. Gangjee Sajun and Co.—The witness's firm deals in both paddy and rice. He was interested in the question of price. As a businessman, he bought in the cheapest market and sold in the dearest. He did not favour the imposition of a duty on Burma rice, as, in his opinion, that was bound (a) to affect the exports of rice from Bengal, and (b) to provoke retaliation by Burma.

Questioned as to how Burma would retaliate, the witness said that if the principal agricultural product of Burma could not find a reasonable outlet in the market of her nearest neighbour there would be every inducement on the part of Burma to hit back. She could do so most easily by growing jute. According to the witness, the circumstances were particularly favourable for the cultivation of jute in Burma and it was nothing but laziness on the part of the average cultivator that prevented culture of this fibre in that country.

Questioned as to how the restriction of Burmese imports would affect the exports of Bengal rice, the witness said that there will be an increased competition from Burma in foreign markets and thus Bengal rice would be ousted from those markets.

Questioned as to how then he suggested the raising the price of paddy, the witness said that he had no prescription to offer.

**Precis of Oral Evidence recorded by the touring
Sub-Committees.**

Précis of evidence recorded at Bogra on 30th November 1938.

The Sub-Committee examined (I) six representatives of local opinion, (II) seven representatives of growers, and (III) three representatives of middlemen and merchants.

(I) The representatives of this group included Chairman, District Board, and Secretaries of the District Agricultural Association and Union Board Association.

The witnesses could not agree if Bogra was a deficit or a surplus district. Chairman, District Board, thought it was a surplus district, but Secretary of the District Agricultural Association seemed to believe it was a deficit district. According to the latter witness, paddy was imported from Dinajpur, Rungpore and Assam.

The present statistics were unreliable. According to the witnesses, the only way to improve them was to try and improve the existing Union Board machinery for this purpose.

Cost of production	..	Re. 1 to Re. 1-4 per maund (1 seer=60 tolas). (The cost was lower in the Eastern district from the Western part from the district)
Yield	.. ..	Varied between 4 maunds (Western part) and 8 maunds (Eastern part).

The prevailing price was Re. 1-10 per maund for old rice. Usually the price after the harvest fell to Re. 1-4 per maund.

All of them considered a profit of Re. 1 per maund a fair profit. At present the cultivators hardly earned any profit.

They advocated standardization of weights, but were sceptical about the success of co-operative marketing.

(II) The representatives of the growers, among whom were included some Presidents of Union Boards did not seem to have any very serious grievance against the present conditions of cultivation and marketing of paddy. The best methods to improve the position of the cultivators were, according to them, (1) the supply of improved seeds, (2) irrigation facilities.

Their opinion differed as to the utility of co-operative societies and regulated markets. Some were inclined to favour them, while others thought that the present system of marketing, in which the farias worked on a margin of annas 2 to annas 3 per maund could not be substantially improved upon.

(III) The representatives of merchants and middlemen complained of the steady fall in price. Present prices were, however, on the up-grade. Even so, the margins, on which the middlemen worked were steadily dwindling.

Précis of evidence recorded at Hili (Dinajpur) on 1st December 1938.

The Sub-Committee examined (I) Circle Officer, Balurghat, (II) five representatives of local opinion, (III) five representatives of growers, and (IV) eleven representatives of merchants and middlemen.

(I) The Circle Officer was examined mainly with regard to general agrarian conditions in the Balurghat subdivision. He estimated that 30 per cent. of the population were landless labourers. One of the most serious drawbacks of the subdivision was the lack of suitable communications. This was a handicap to marketing operations.

(II) The witness stated that in their opinion the price of paddy was slowly but steadily rising since 1934. They would consider Re. 1.8 to Re. 1.12 per maund (1 seer=60 tolas) to be a fair price to all the interests concerned. They estimated the cost of cultivation at Rs. 6.8 per standard bigha, and the average yield at $4\frac{1}{2}$ standard maunds per bigha.

On the question of price policy, however, opinion seemed to be divided. Some suggested restriction of imports, while others suggested improvement of cultivation. Some of the witnesses stated that if a minimum price were fixed, more than 50 per cent. of the people, who did not have sufficient food, were likely to be adversely affected.

(III) The representatives of the growers stated that the average yield per bigha was $5\frac{1}{6}$ maunds. For the last two years, the price obtained by them had varied between annas 14 and Re. 1.4 per maund.

The deductions and allowances to which the growers had to submit were as follows:—

- (i) 2 seers of *dhalta*.
- (ii) 1 anna per car as road charges.
- (iii) 1 anna and 6 pies as "School britti".

They were not in favour of co-operative societies if they had to wait long for the value of their crops—they could wait upto *Chaitra*, but not after that.

They expressed themselves in favour of Regulated Markets, if they received official support and were under official supervision.

The majority of the cultivators marketed their own crops.

(IV) The representatives of middlemen and merchants could be roughly grouped under two main heads—

- (a) Those who represented the milling industry (there were a large number of rice-mills at Hili).
- (b) Those who represented the interests of aratdars and commission agents.

The former group of witnesses gave some interesting figures regarding the milling industry. Prices were, on an average, as follows:—

	Paddy.	Rice.
1937 ..	Re. 1-3 to 1-6 (60 tolas).	Rs. 2-5 (60 tolas.)
1938 ..	Re. 1-4 to 1-10 (60 tolas).	Rs. 2-2-6 to 2-10 (60 tolas.)

- (i) One maund of paddy produced 25 seers of rice.
- (ii) Cost of milling was annas 4 per maund of rice.
- (iii) The overhead charges of an average mill were as follows:—

				Rs.
Manager	..	..	..	50
Cashier	..	..	..	20
Clerk	..	..	..	20
2 Mahaldars at Rs. 20 each	..	..	..	40
Mistri	..	..	..	30
2 Firemen at Rs. 20 each	..	..	..	40
Oilman	..	..	..	15
Total	..	..	..	215

The wages paid to the labourers were annas 4 to a woman, and annas 5 to a man. An average mill engaged from 40 to 50 labourers a day.

Opinion was divided as to the relation of prices between the Calcutta and Hili markets. Some witnesses stated that there was very little direct relation between the two sets of prices; while others argued that as the Calcutta market had been depressed by the Burmese imports, Hili rice could not find any market there, and had to rely on its up-country markets. Consequently there was a selling pressure in the markets, and prices were low. Hence some of them advocated restriction of Burmese imports.

The markets for Hili rice at present were Assam, Serajganj, Narayanganj and Bihar.

The representatives of Aratdars and Commission Agents stated that they purchased paddy mostly through farias, and stocked it for a rise in price. They also purchased rice from those mills, which could not stock their own rice, but were obliged to sell it. These stocks of paddy they sold to the mills and the Beparis, local as well as foreign, during the rains, when prices were high. Similarly they sold their stocks of rice when there was a rise in price.

All of them advocated standardization of weights and measures.

Précis of evidence recorded at Rungpore on 3rd December, 1938.

The Sub-Committee examined (I) the District Agricultural Officer, (II) four representatives of local opinion, (III) eight representatives of growers, and (IV) three representatives of mill-owners and merchants.

(I) The District Agricultural Officer was examined jointly with some of the witnesses belonging to group II, and generally agreed with their views.

(II) According to these witnesses, the cost of production was Rs. 9 per bigha, and the average yield 6 maunds per bigha both for Aus and Aman paddies. Average cost of production was Rs. 1-8 per maund.

None of them were in favour of fixation of minimum price, or regulated markets. Some favoured co-operative societies, while others did not expect much benefit from them. One of the stumbling blocks in the way of co-operative marketing was finance.

All the witnesses of this group suggested (i) improvement in the yield per bigha, and (ii) restriction of foreign imports.

The movements of prices were as follows:—

				Rs. a.	Rs. a.	
1936	..	..	..	1 10 to 2 1	(80 tolas).	
1937	..	..	..	1 8 to 1 12		
1938 (December)	..	..	..	2 8	(old paddy).	

(III) The growers' representatives gave varying estimates of yield and costs of cultivation.

(i) Yield was said to vary from 6 to 10 maunds.

(ii) Cost of production was said to vary as follows, in different parts of the district:—

Rs. a.					
10 0	..	..	..	..	for 8 maunds.
11 9	..	..	..	..	„ 10 „
17 0	..	..	..	..	„ 14 „
11 0	..	..	..	..	„ 6 „
16 0	..	..	..	..	„ 12 „

The average cost of production was said to be Rs. 1-12 per maund. Average rent was said to be Rs. 3 per bigha for raiyati holdings, and was said to rise to Rs. 6 in extreme cases for under-raiyati holdings.

Prevailing prices were said to be as follows:—

				Rs. a.	Rs. a.	
1937	..	..	..	1 4 to 2 0	per maund.	
1938	..	..	..	1 4 to 2 8	per maund.	

The improvements suggested by them were—

- (i) use of manures;
- (ii) irrigation facilities; and
- (iii) improvement in the breeding of cattle.

(IV) The representatives of the mill-owners and merchants stated that they purchased one-third of their requirements of paddy direct from cultivators, and the remaining two-thirds from farias.

Prices.		Paddy.		Rice.	
		Rs. a.	Rs. a.	Rs. a.	Rs. a.
1937	.. ..	1	11 to 2 3	3	0 to 3 4
1938	.. ..	....		2	12 to 4 0

(i) Cost of milling was annas 6 per maund of rice (80 tolas).

(ii) Railway freight—

(a) Badarganj (centre of milling industry in the district) to Rungpore at annas 1-3 per maund.

(b) Badarganj to Lalmanirhat at annas 2 to annas 2-3 per maund.

The market for Rungpore rice was local. But sometimes it was also exported to Lalmanirhat or Bihar.

The witnesses complained of the unsatisfactory nature of communications. The cost of transport of paddy in bullock carts was annas 1-6 to annas 2 per maund for 20 miles.

Précis of evidence recorded at Dinajpur on 4th December, 1938.

The Sub-Committee examined (I) three representatives of local opinion, and (II) and (III) six representatives of growers, middlemen and merchants jointly.

(I) The witness belonging to this group included Chairman, District Board, and Secretary of the local Central Bank.

They all agreed that Dinajpur was a surplus district. The principal varieties of paddy grown were "Katari", "Indrasal", "Joshna" and "Darksvar".

According to one of the witnesses, 40 per cent. of the population of Dinajpur were landless labourers. This figures included adhiars or bargadars. The people of the district were lazy, which accounted for the large influx of labour from other districts at the time of harvest. Another reason for this fact might be the deterioration in the health of the people, caused by chronic malaria.

The witnesses were in favour of standardization of weights and measures, but against regulated markets. They thought it would be difficult for the cultivators to carry the crops to the regulated markets.

* Communications in the district were not satisfactory. The reason was the lack of any effective demand on the part of members of the District Board for good communications.

Balurghat in the Dinajpur district was in most urgent need of irrigation facilities.

The Secretary of the local Central Co-operative Bank explained the organization of the Parbatipur Co-operative Purchase and Sale Society, recently established there (copies of his note on this subject have been separately circulated among the members).

(II) & (III) The witnesses of this group gave interesting figures of cost of cultivation and yield.

Cost of cultivation—Rs. 7 to Rs. 8 per bigha for Aman lands, and slightly higher for Aus lands.

Yield—6 maunds (80 tolas) for Aman, 3½ maunds for Aus.

If the cost of labour and the interest inserted in the land were taken into account, the cultivators could hardly make any profit.

The average cultivator rarely grew sufficient paddy to last for more than 6 months in the year. Even if the obligatory charges payable by him were written off, he would hardly have more than nine months' supply in his hands.

The witnesses favoured co-operative marketing, only if the cultivators were given the full value of their crop immediately after harvest.

They were in favour of standardization of weights.

They did not ask for any minimum price, but wanted—

- (i) improvement in communications;
- (ii) irrigation facilities.

Price.—Generally, the price of paddy was low immediately after harvest, but rose to a maximum in Aswin or Kartick. The difference was sometimes as much as annas 8 per maund.

1936	..	..	The price varied from Re. 1-4 to Re. 1-12 (96 tolas).
1937	..	..	Re. 1-4 to Rs. 2.
1938 (present)	..	..	Re. 1-6.

Précis of evidence recorded at Barisal on 8th December, 1938.

The Sub-Committee examined (I) two officials, (II) one representative of local opinion, (III) four representatives of growers, and (IV), three representatives of middlemen and merchants.

(I) The representatives of this group were the Khas Mahal Officer, and Assistant Registrar of Co-operative Societies.

The Khas Mahal Officer gave interesting estimates of yield. The average yield was 5 maunds per bigha, but certain areas in the Sunderban yielded as much as 20-24 maunds per acre. The average rate of rent in the Kayemi area was Re. 1-4 per bigha.

The present price was Rs. 2 per maund (80 tolas), which was higher than last year's price by about annas 4 per maund. A fair price would be about Rs. 2-4 per maund.

Labourers were imported from other districts for harvesting the crop not only in the colonization area, but all over the district, because outside labour was found to be more efficient than local labours.

The average cultivator did not have sufficient supply of paddy to last him throughout the year.

The Assistant Registrar of Co-operative Societies did not believe that Co-operative Sale Societies could succeed, unless the villagers were compelled by law to bring their produce to the societies. In the past, such societies had failed, because of—

- (a) lack of business ability,
- (b) lack of efficient management, and
- (c) lack of loyalty of the members.

Besides, there were the financial difficulties. If funds at a very low rate of interest were placed at the disposal of co-operative societies, then only could they function successfully.

(II) Chairman, District Board, was the only witness in the group. According to him, Barisal was a surplus district. Paddy was exported to Faridpore, Pabna, Dacca, Jessore, Khulna, Comilla and Calcutta.

Cost of cultivation—Rs. 8-8 per bigha.

Yield—5 maunds (Aman) and 3 maunds (Aus).

The witness favoured standardization of weights and measures, and also regulated markets. At least one regulated market in each union was suggested.

The best way to improve the margin of profit to the cultivator was—

- (a) reduction of rent;
- (b) improvement of fertility of lands; and
- (c) supply of improved seeds.

Price.—During the last three years, the price of paddy fluctuated between Re. 1-8 and Re. 1-14 per maund. This year the price was slightly higher.

(III) The witness stated that the average cost of cultivation was Rs. 8-8 per bigha, and the average yield was 6 maunds per bigha.

They believed that the price was steadily rising during the last three years. The present price was Rs. 2 per maund.

According to their estimates, a faria worked on a profit of annas 2 per maund. The difference between the prices, prevailing in the villages, and in the primary markets was as high as annas 4 to annas 6 per maund.

Questioned as to co-operative societies, they said that they were in favour of them, provided the cultivators were advanced the whole or nearly the whole of the value of their produce.

They did not see how any minimum price could be enforced.

(IV) The witness belonging to this group stated that they dealt in paddy as well as rice.

Some of them gave some interesting figures showing the nature of their business.

				Buying rate. (rice).	Selling rate. (rice).
				Rs. a.	Rs. a.
1342	..	..	..	3 4	3 8
1343	..	..	..	3 12	4 0
1344	..	..	..	3 4	4 0
Price (Paddy)—				Rs. a.	Rs. a.
1937	..	..		1 12 to	2 0 (100 tolas).
1938	..	..		2 0	.. (100 tolas).

They stated that beparis rarely made a profit of more than annas 2 a maund.

Précis of evidence recorded at Dacca on 10th December, 1933.

The Sub-Committee examined (I) five officials—including four officials of the Agricultural Department and Senior Deputy Collector, Dacca, (II) two representatives of local opinion, (III) four representatives of growers, and (IV) four representatives of middlemen and merchants.

(I) The Senior Deputy Collector, who was in charge of Agricultural Statistics, explained the method of compilation of these statistics. Except cattle statistics, all other agricultural statistics are collected from union boards through Circle Officers. The cattle statistics are collected through thana officers.

The Deputy Director of Agriculture, who had considerable experience of Upper Burma gave some interesting figures of cost of production and yield.

(i) Yield—(average) 36 baskets of 18 maunds per acre. In some places, the yield rose to 50 baskets.

(ii) Cost of cultivation—Rs. 16 per acre excluding irrigation tax (Rs. 7-8 was the irrigation tax on an average).

There was hardly any need for irrigation in Lower Burma. So, the cost there was Rs. 16 per acre.

The witness was inclined to think that the ploughing costs in Burma were less than those in Bengal. Bullocks as well as the methods of cultivation appeared to be superior to those of Bengal. Another advantage was that rains never failed in Burma.

Paddy was marketed much in the same way as jute in Bengal. The big European Millers at Rangoon had their agencies in the mufassal, which bought paddy from the cultivators through beparis and farias. Grading was done by the mills.

The other departmental witnesses estimated the cost of cultivation as follows:—

					Rs. a.
Ploughing (4)	..	..	..	..	2 0
Seeds and seedlings	..	..	..	..	1 4
Transplantation (4 labours)	..	..	..	..	1 4
Harvesting	..	..	..	..	1 4
Thrashing	..	..	..	..	1 0
Rent	..	..	..	..	1 4
				Total	8 0

The average yield appeared to be 6 or 6½ maunds per bigha.

The Economic Botanist explained the work of the department in evolving new strains of paddy, and the culture experiments that were being conducted in the various research stations all over Bengal. According to him, in the present state of holdings in Bengal, the only practical method of improving cultivation were (i) use of improved seeds, (ii) use of manures, and (iii) better irrigation facilities.

(II) The President of the Bar Association did not consider it necessary to raise prices, and was definitely against fixation of any minimum price.

Dr. H. L. Dey, Professor of Economics, stressed the necessity of compilation of more reliable statistics. He thought that if a grant-in-aid were given to the union boards to get this work done by their staff, this could be done. In that case, it would be necessary to have an officer to supervise this work.

In an average year, Bengal probably imported 5 lakhs of tons, of which 3½ lakhs were exported leaving a balance of 1½ lakhs for local consumption. Restriction of imports might raise prices, but he suggested that only the price factor should not be stressed.

(III) The representatives of the growers stated that the principal varieties of paddy grown in Dacca were Aus, Sail and Aman.

(a) Cost of production—

Aus and Sail—Rs. 14 or Rs. 15 per bigha.

Aman—Rs. 7 or Rs. 8 per bigha.

(b) Yield—

Aus—Varied from 4 maunds to 7 maunds.

Sail—Varied from 4 maunds to 7 maunds.

Aman—Varied from 6 maunds to 9 maunds.

Price—

Aus—Re. 1-8 to Re. 1-12 per maund.

Sail—Rs. 2 to Rs. 2-4 per maund.

Aman—Re. 1-12 to Rs. 2 per maund.

Most of the cultivators had hardly enough supply of food to last them for more than six months.

They did not advocate fixation of minimum price.

(IV) The representatives of this group stated that Dacca produced barely 30 per cent. of its requirement of paddy. Paddy was imported from Barisal and Sylhet.

The beparies brought the paddy in their own boats, and sold them to the aratdars on a commission basis. Sometimes the aratdar himself purchased and stocked the paddy. The following were some typical figures to show the cost incurred by a bepari:—

(i) Boat hire—Rs. 18 to Rs. 20 per 100 maunds.

(ii) Brokerage—6 pies per maund.

(iii) Coolie hire—6 pies per maund.

(iv) Other charges (Chattais, etc., for preserving the paddy during harvests)—1 anna per maund.

The usual cost of milling were annas 4 per maund of paddy. 1 maund 25 seers of paddy produced 1 maund of rice.

The difference in price between Bagabandar (Barisal)—the principal centre from which paddy is imported—and Dacca was about annas 10 or annas 12 per maund. The importers made a profit of annas 3 or annas 4 a maund. During the last two years, many middlemen had incurred loss in this business.

Précis of evidence recorded at Serajganj on the 10th January 1939.

The Sub-Committee examined (I) three officials, (II) three representatives of local opinion, (III) two representatives of growers, and (IV) four representatives of middlemen and merchants.

(I) The witnesses in this group included Circle Officer, Ullapara, Inspector of Co-operative Societies, and District Agricultural Officer.

The Circle Officer stated that Serajganj was a deficit subdivision, and imported a large quantity of paddy and rice. The average cost of production was Rs. 8-8 including rent, and the average yield 6 maunds per bigha. The average rent was Rs. 1-8 per bigha. The present price was Rs. 2 for Aman, and Rs. 1-12 for Aus. The price appeared to be gradually rising. He would consider Rs. 2-8 or Rs. 1-12 a fair price.

He was against fixation of price, but was in favour of regulated markets, and standardization of weights.

Forty per cent. of the cultivators took paddy loans. They borrowed paddy in the rains, and had to repay the loan immediately after the harvest. As the price at harvest time was less than the price at the time of borrowing, the cultivators lost a large amount in this deal.

The Inspector of Co-operative Societies was of opinion that cultivators would agree to market their crop through co-operative societies, if the aims and objects of these societies were explained to them.

The District Agricultural Officer stressed the need for improved ploughs and agricultural improvements, and advocated grading of paddy and rice. At present, it was only the middlemen who got the benefit of differences in quality.

(II) The representatives of this group were inclined to think that fixation of minimum price was not desirable. One of the witnesses however said that a low minimum price of Rs. 2 or Rs. 2-4 might be fixed. The general feeling was that it was only the cultivators of Taras police-station who had a surplus to sell, and it was only they, who stood to gain by a rise in the price of paddy. Cultivators, who had to purchase about six months' supply of rice would neither gain nor lose by rise in the price.

Two of the witnesses thought regulated markets would be no use, while one appeared to favour them.

All agreed that weights should be standardized, and that co-operative societies might increase the profit of the cultivators, if they could be run successfully. But they would not be popular, unless their advantages were carefully explained to the cultivators.

Average cost of production was Rs. 7 per bigha, and the average yield about 5 maunds.

(III) The representatives of this group stated that the average cultivator had hardly sufficient produce to last him for more than six months in the year. For the remaining period of the year, they had to buy paddy or take paddy loans.

Cost of production	..	..	Rs. 7 or Rs. 8 per bigha.
Yield	..	..	5-6 maunds per bigha.

Both the witnesses stated that due to the construed effect of the Bengal Tenancy (Amendment) Act, and the Bengal Agricultural Debtors' Act, cultivators were rapidly losing their lands.

Average rent varies from Re. 1 to Re. 1-8 per bigha.

(IV) The representatives of this group stated that they purchased paddy and rice from Bogra, Calcutta, Midnapore, Balasore, Hili, and occasionally from Assam. The following were some typical figures of Railway and Steamer freights:—

From Hili	..	..	Annas 4-6 per maund.
From Cooch Behar	..	..	Annas 2 to annas 2-6 per maund.
From Assam (by boat)	..	..	Annas 3 to annas 4 per maund.
From Kalighat or Calcutta (by steamer).	..	..	Annas 4-6 per maund.

All of them were against fixation of minimum price, and regulated markets.

They were also not very enthusiastic about standardization of weights.

It was cheaper to import paddy and rice from Assam, but the quality of the Assam produce was inferior to that of Bengal.

Précis of evidence recorded at Mymensingh on the 11th January, 1939.

The Sub-Committee examined (I) the District Agricultural Officer, (II) two representatives of local opinion, (III) three representatives of local growers, and (IV) two representatives of local middlemen and merchants.

(I) The District Agricultural Officer gave the following figures of cost of cultivation and yield:—

	Aus.	Aman.
(i) Cost of cultivation	.. Rs. 8	.. Rs. 7 (including rent per bigha.
(ii) Maunds	.. 3 maunds	.. 5½ maunds per bigha.
(iii) Price	.. Re. 1-10 (1937-38)	Re. 1-12 to Rs. 2-2 (1937-38). Rs. 2 (1938-39).

It was stated that cultivators grew the Aus paddy mainly for their own consumption.

Questioned as to improvement of marketing conditions, the witness stated that regulated markets might be tried, and co-operative purchase and sale societies might be successful in those areas where the price was unduly low, e.g., Haluaghat and Durgapur in Mymensingh. From both these areas large quantities of paddy were exported every year.

(II) The witnesses gave the following estimates of cost of production and yield:—

	Aus.	Aman.
(i) Cost of cultivation	.. Rs. 7 or Rs. 8	.. Rs. 8 or Rs. 9 per bigha.
(ii) Yield	.. 3-4 maunds per bigha.	6 to 7 maunds per bigha.

On an average, the cost of cultivation might be estimated at about Re. 1-4 per maund.

Prices—

Aus	.. Re. 1-4 to Re. 1-12 per maund.
Aman	.. Re. 1-8 to Rs. 2-4 per maund.

The witnesses advocated use of improved seeds and manuring on an extensive scale, in order that the yield might be increased. Another point urged was the improvement in communications. It was stated that in the Haluaghat area in Mymensingh prices were abnormally low largely because of lack of communications.

Standardization of weights was recommended. Market dues were generally of the following character:—

- (i) Zemindar's levies—Varied from annas 4 to Re. 1 per boat or a small rate per maund if the produce was carried on pack animals.
- (ii) Brittis.
- (iii) Dhaltas.

One of the witnesses thought that these deductions sometimes amounted to as high as annas 8 per maund.

The witnesses were pessimistic about the possibilities of co-operative marketing and regulated markets, and did not favour fixation of minimum price. They thought that fixation of minimum price would hit hard the labouring classes, and the cultivators who had to buy paddy for the part of the year.

(III) The representatives of growers gave different figures of cost of production and yield. They suggested the following improvements:—

- (i) use of improved seeds and manures;
- (ii) cattle improvements; and
- (iii) provision of pasture.

They did not favour fixation of minimum price. According to them, a large percentage of the cultivators as well as others had to buy paddy for their consumption. These people would suffer as a result of rise in the price of foodstuffs. They further stated if the price of jute could be raised, the price of paddy would rise, and the difficulties of paddy cultivators would disappear.

(IV) According to the testimony of these trader witnesses, the price of paddy and rice rose systematically every year from a low figure, immediately after harvest, to a reasonable figure during the rains. The price was at its maximum in Aswin-Kartik (September-October). The difference between the minimum and maximum points was generally between annas 8 and annas 12 per maund.

Rangoon rice was of inferior quality and commanded a premium of annas 8 to annas 12 per maund.

A fair price of paddy, according to these witnesses, was Rs. 2-8 to Rs. 3 per maund.

Précis of evidence recorded at Kishoreganj on 13th January 1939.

The Sub-Committee examined (I) two officials, (II) four representatives of local opinion, (III) three representatives of growers, and (IV) one representative of middlemen and merchants.

(I) The official witness described the economic position of the cultivators in general terms, saying that over 70 per cent. of them were in debt. During the last two years, the professional money-lending classes had ceased to lend any more money. The provision of agricultural credit was an urgent problem, as every cultivator required financial accommodation during the sowing season.

The price of paddy was steadily rising during the last few years:—

	Paddy.	Rice.
1933-34	.. Re. 1-8 to Re 1-10	Rs. 3.
1934-35	.. Re. 1-12 to Rs. 2	.. Rs. 3 to 3-4.
1935-36	.. Rs. 2	.. Rs. 3 to 3-8.
1936-37	.. Rs. 2 to Rs. 2-2	.. Rs. 3-8 to 3-14.
1937-38	.. Rs. 2 to Rs. 2-4	.. Rs. 3-12 to 4-4.

The principal varieties of paddy in Kishoreganj were Boro Bawa (in the low lands) and Aus. The costs of production varied from place to place.

They suggested the following lines of improvement:—

- (i) provision of irrigational canals;
- (ii) use of improved manures;
- (iii) improved methods of cultivation; and
- (iv) provision of grazing grounds.

(II) The witnesses belonging to this group stated that Kishoreganj was a deficit subdivision—Paddy being imported mostly from Sylhet, and rice from Rangoon and Barisal.

	Aus.	Aman.
(i) Cost of cultivation	.. Rs. 6 <i>plus</i> rent	.. Rs. 5 per bigha <i>plus</i> rent.
(ii) Yield	.. 4 maunds.	.. 8 maunds per bigha.

Boro and Bawa (deep-water) paddy were grown in the *bhati* or *bil* area of the subdivision. The yield of *boro* was about 8 maunds per bigha and that of *bawa* about the same.

As regards improvement in the price of paddy, the witnesses seemed to think that the price depended generally on the economic condition of the country, and particularly on the price of jute. If the price of jute could be raised, they thought the price of paddy would automatically rise. They were against legislative fixation of a minimum price.

They advocated standardization of weights and measures, and supported the establishment of regulated markets on an experimental basis.

They did not seem to be very much in favour of the establishment of co-operative purchase and sale societies.

(III) The representatives of growers gave some estimates of cost of cultivation and yield, which agreed generally with those given by other witnesses. They also confirmed the fact that the prices of paddy was steadily rising since 1936, being generally as follows:—

1936	..	..	.. Re. 1-12 to Rs. 2 per maund.
1937	..	..	.. Rs. 2.
1938	..	..	.. Rs. 2-4 to Rs. 2-8 per maund.

The witnesses advocated (1) standardization of weights and measures, (2) establishment of regulated markets and suitable centres. It was also suggested that the existing markets should be controlled.

None of the witnesses demanded fixation of minimum prices.

(IV) The representatives of this group had very little to say, except that they were against fixation of a minimum price, as that would, in their opinion, hit the majority of the rural population very hard. It was stated that only about 5 per cent. of the population had a surplus to sell over the year, another 20 per cent. had just supply of food to last them throughout the year, and the rest had either to purchase or borrow paddy.

Précis of evidences recorded at Comilla on 14th January 1939.

The Sub-Committee examined (I) two officials, (II) four representatives of local opinion, (III) eight representatives of growers, and (IV) six representatives of local middlemen and merchants.

(I) The officials included the Sadar Subdivisional Officer, Comilla.

According to this witness, Tippera was a deficit district. On balance, paddy was imported from Rangoon, Dinajpur, Barisal and Chittagong. No exact figures were, however, available. The present method of compilation of statistics was extremely unsatisfactory.

(i) Cost of cultivation—Re. 1 to Rs. 1-4 including rent.

(ii) Yield—5 to 7 maunds per bigha.

The witness favoured the establishment of co-operative sale societies. According to him, if the cultivators could hold the crop for any reasonable length of time, prices would go up.

The District Agricultural Officer also stated that Tippera imported large quantities of paddy from Barisal, Sylhet and Burma.

(II) The witnesses all agreed that fixation of a minimum price was not possible.

They also agreed that Tippera was a deficit district. Paddy was imported not only from Barisal, Chittagong, Akyab and other Burmese ports, but also from Sylhet on the north. A large quantity of Burma rice was imported—the big importing centres being Daulatganj, Hajiganj, Ramchandrapur and Jaffarganj.

The witnesses gave varying estimates of yield and cost of cultivation. The average figures were—

(i) Cost of cultivation—Rs. 7 or Rs. 8 per kani (2½ kanis = 1 acre).

(ii) Yield—5 to 6 maunds per bigha.

This year the price of paddy was higher than last year—Rs. 1-14 to Rs. 2 per maund.

The witnesses complained of damages caused to the standing crops every year due to over-flooding of the *Gumti*. The embankments were not repaired, and according to them that was the cause of this annual inundation.

(III) The representatives of growers gave interesting figures of cost of cultivation and yield per bigha.

The following were some typical figures:—

Cost of cultivation—Ropa paddy Rs. 9 per kani and rent.

Cost of cultivation—Broadcast Aus Rs. 4 per kani and rent.

Cost of cultivation—Aman Rs. 4 per kani and rent.

(Rent varied from annas 8 to Rs. 3 per kani according to the quality of the land. 1 kani = ¼ acre.)

(ii) Yield—3 maunds per kani (¼ acre) of Aus.

(iii) Yield—7½ maunds per kani (¼ acre) of Aman.

The following details of the cost of cultivation were supplied:—

				Per bigha.
				Rs. a.
Ploughing and sowing	..	..	..	3 0
Seed	..	..	..	1 0
Manure (cowdung)	..	..	..	1 0
Weeding	..	..	..	3 0
Harvesting	..	..	..	3 0
				<hr/>
				11 0
Rent	..	..	..	1 8
				<hr/>
Total	..	..	..	12 8
				<hr/>

The price of paddy varied from Re. 1-6 to Re. 1-8, in the case of Aus, and from Re. 1-10 to Re. 1-12 in the case of Aman. Ropa usually carried a small premium.

All the witnesses advocated standardization of weights and measures. They also suggested the establishment of regulated market in every union, but admitted that market charges were not all heavy in this district.

None of them advocated fixation of a minimum price.

They suggested the following improvements:—

- (i) increase of fertility of the land;
- (ii) improved methods of cultivation;
- (iii) excavation of *nullas* and *khalas* for drainage;
- (iv) cultivation of rabi crops; and
- (v) provision of pasture lands.

(IV) The representatives of this group supplied useful figures of price movements.

Price—	Rice.	Paddy.
1936	.. Rs. 2-8 to Rs. 3-4	.. ..
1937	.. Rs. 3 to Rs. 3-8	.. Rs. 2 Aman.
1938	.. Rs. 4 to Rs. 4-4	.. Rs. 2-8 Aman.

The following further details were obtained—

		Fine Rice.		Coarse rice.		Balam.
1343 B.S.	..	Rs. 3-8 to Rs. 3-10		Rs. 2-14	..	Rs. 4.
1344 B.S.	..	Rs. 3-10	..	Rs. 3-2	..	....
1345 B.S.	..	Rs. 3-14	..	Rs. 3-6	..	Rs. 3-14 to Rs. 4.

It was stated that in the current year a large quantity of Burma rice had been imported into the district.

None of these witnesses advocated fixation of a minimum price nor were they particularly in favour of regulated markets.

It was stated that the produce of the district was consumed within the district, and very little of it was exported. On the contrary, a large quantity of paddy was annually imported from Bakarganj, Chittagong, Akyab, Sylhet, etc.

Précis of evidence recorded at Jessore on 27th January 1939.

The Sub-Committee examined (I) two district officials, including the District Magistrate, (II) two representatives of local opinion, (III) nine representatives of growers and (IV) seven representatives of merchants and middlemen.

(I) The District Magistrate stated that the existing statistics were all unreliable, but he was not sure if it was possible to utilize the services of any other staff than those of the union boards to effect any improvement for this purpose. A great deal depended on the supervision of this work.

Cost of production ..	..	Rs. 1-8 per maund, including rent.
Yield ..	..	20 maunds per standard acre.

Price of rice—					Rs. a.
1932-33	..	..	..	..	2 4
1933-34	..	..	..	..	2 6
1934-35	..	..	..	..	2 12
1935-36	..	..	..	..	2 8
1936-37	..	..	..	..	2 13

The prevailing price was higher, being Rs. 2-2 for paddy. Having regard to the cost of production, he thought Rs. 2 or Rs. 2-4 per maund for paddy would be a fair price.

Minimum price was desirable, but did not seem to be practicable. Regulated markets were not likely to be popular. Besides, they would be expensive.

Co-operative societies would be successful for marketing the crop, if sufficient finance were available.

The District Agricultural Officer stated that the principal crops in the district were Aman, Aus, Jute and Sugarcane. In *bil* areas, only Aman could be grown—25 per cent. of the district area came under this category. The yield of Aus was 6 maunds per bigha and the yield of Aman was 7 maunds. The cost of production was Rs. 18 to Rs. 20 for Aus, and Rs. 12 for Aman.

(II) The representatives of local opinion included the President of the Bar Association and Deputy Secretary of the Central Co-operative Bank.

The former gave figures of cost of production and yield similar to those of the District Agricultural Officer. Paddy cultivation was not a profitable occupation, but he thought it was not practicable to fix minimum prices unless the state assumes entire control of the business.

The other witness suggested co-operative sale societies, but stressed the need for honesty, integrity and other qualities on the part of the members.

Both the witnesses believed that normally, Jessore was a self-supporting district.

(III) The representatives of the growers gave the following figures of cost of production and yield:—

Cost of production	..	Rs. 12 per bigha.
Yield	..	6 to 7 maunds per bigha.
Last year's price moved between Re. 1.4 and Re. 1.8 per maund.		
Present price was between Rs. 2 and Rs. 2.2.		

They were not very much in favour of fixation of minimum prices, and pointed out that unless there were purchases at the prescribed minimum price, more harm than good would result from the proposal.

Provided 75 per cent. of the value of the crop were advanced to the cultivators, they were in favour of marketing through co-operative societies.

They thought that cultivators would be benefited by the establishment of regulated markets, but they wanted Government supervision of them.

(IV) The witnesses of this group gave varying estimates of the paddy and rice requirements of the district. Some of them were of opinion that the district was not self-supporting, and large quantities were annually imported from Khulna and Barisal; while others said that except in years of drought and flood, the district could produce its own supply of food.

Last year, the price varied from Rs. 1.8 to Rs. 1.12 per maund whereas the present price was Rs. 2.2 per maund.

They did not advocate fixation of minimum price.

They seemed to think that improvement in cultivation was the only means of improving the conditions of cultivators. One of the urgent problems of the district was the evil of water-logging. If suitable drainage schemes were not initiated to tackle this problem, the future of the district was, in their view, extremely dark.

Précis of evidence recorded at Krishnagar on 30th January 1939.

The Sub-Committee examined (I) two officials, including the District Magistrate, (II) two representatives of local opinion, (III) six representatives of local merchants and middlemen and (IV) five representatives of growers.

(I) The District Magistrate stated that Nadia was a deficit district, and it was practically an Aus district. Very little Aman paddy was grown.

The existing statistics were unreliable. He suggested some method of random sampling.

He was not in favour of fixation of minimum price—the case of paddy was entirely different from that of jute. According to him Rs. 3 per maund would be a fair price to all interests concerned.

The average yield in the district was 4 maunds per bigha.

He was sceptical of the usefulness of regulated markets, but advocated establishment of co-operative sale societies.

The District Agricultural Officer suggested establishment of union board agricultural associations for the improvement of agriculture. According to him, the present agricultural associations being located at district or subdivisional headquarters lacked vitality and were out of touch with the agricultural needs of villagers.

(II) The representatives of this group stressed the need of Government assistance in developing agriculture. The President of the Bar Association who was secretary of the local District Agricultural Association stated that it failed because of inadequate Government support. It was not possible for it to supply seeds in good time, and in sufficient quantity to all those that required it. Besides, there was no local co-ordination among the various departments of Government with the result that needless delay occurred in taking any ameliorative action. He suggested the establishment of a demonstration farm in every union, and stressed the need of running it under local conditions.

The Secretary of the Central Bank pointed out the disadvantages of marketing under the existing conditions. Cultivators had to sell in a glutted market immediately after the harvest when prices were very low. This could be avoided by the establishment of co-operative sale societies. But the cultivators would have to be paid almost the entire value of the crop immediately after harvest. Without adequate financial support from Government, this could not be done.

(III) The growers' representatives were examined mainly with regard to the conditions of cultivation.

Cost of cultivation—

Aus	..	..	Rs. 11 per bigha.
Aman	..	..	Rs. 8 to Rs. 9 per bigha.

Yield—

Aus	..	..	6 maunds per bigha.
Aman	..	..	5 maunds per bigha.

Price—

Last year	..	..	Re. 1-8 per maund.
This year	..	..	Rs. 2 per maund.

Price was at its lowest immediately after harvest, and began to rise just before the rains. The increase in price varied between annas 4 and annas 8 per maund.

Fifty per cent. of the population possessed lands of 15-20 bighas; 25 per cent. have more than this quantity, and the remaining 25 per cent. had no lands. Conditions, however, differed in different subdivisions. But it might be confidently asserted that approximately 50 per cent. of the population did not have sufficient supply of food to last them for more than six months in the year.

One of the growers' representatives, Babu Gouri Kanta Raychoudhuri (Kusthia), stated that he was a cultivator himself. By means of intensive cultivation, and with the help of improved iron ploughs, he had succeeded in reducing his costs of cultivation to Rs. 3-8 to Rs. 4 per bigha, and to increase his yield to 9 maunds per bigha. He got Rs. 5 worth of straw from a bigha. If cultivators followed his example, he said, they could easily make paddy cultivation a paying proposition.

(IV) The representatives of this group included one M. L. A., Maulvi Mohasin Ali. They advocated standardization of weights and measures. They considered that fixation of minimum price was impracticable. Questioned as regards the prospect of co-operative societies, they said that co-operative marketing would not be popular for the reason that cultivators could not wait and required the entire value of their produce immediately after the harvest.

All of them pleaded for improvement of communications inasmuch as better communications would help marketing.

Précis of evidence recorded at Bankura on 4th February 1939.

The Sub-Committee examined (I) two district officials, including the District Magistrate, (II) two representatives of local opinion, (III) three representatives of growers and (IV) five representatives of middlemen and merchants.

(I) The District Officer stated that the existing statistics were all inaccurate, and that it was not possible to obtain more satisfactory figures with the help of the existing agencies. More staff and more money were required. The yield figures depended very much on weather conditions, and on the class of land on which experiments were conducted. At present little attention was paid to these important factors.

On balance, the district was a self-supporting one. A rise in prices was likely to benefit cultivators, but he did not know how the price could be raised.

He suggested cotton and groundnuts as two cash crops for this district.

The Senior Deputy Collector did not consider the fixation of minimum price practicable. He was of opinion that emphasis should be laid on increase of yield. The best way in which this could be done was to improve the existing irrigation facilities. Irrigation co-operative societies were in a moribund condition.

The average holding of a jotedar was 8 bighas and the average yield was 5-6 maunds per bigha. An average cultivator's family of five adults required about 45 maunds of paddy per annum for consumption.

(II) Of the two witnesses in this group, one was examined mainly with regard to the working of co-operative societies in the district. He had a very depressing story to tell. According to him, if the paddy could be marketed through co-operative societies, the cultivators might get an increase of anna 1 or annas 2 per maund. c

The other witness estimated the cost of production at Rs. 8 or Rs. 9 per bigha, including rent, manuring, etc. The average yield per bigha was 4-5 maunds. He was in favour of an increase in price, but felt that no law could be of any help in this matter.

The improvements suggested by these witnesses were—

- (i) improved methods of cultivation;
- (ii) irrigation facilities;
- (iii) propaganda about agricultural improvement; and
- (iv) improvement of communication.

The representatives of growers gave estimates of costs of cultivation, varying between Rs. 7 and Rs. 12 per bigha. The average yield was placed at 6-8 maunds per bigha. The prices prevailing in different years are as follows:—

				Rs. a.
1936	...	...	...	1 14
1937	...	...	...	1 6
1938	...	...	...	1 4
1939	...	...	...	1 12

So, according to these witnesses paddy cultivation was not a paying proposition.

About 60 per cent. of the population had either to purchase paddy or to take paddy loans for about 6 months in the year. Cultivators rarely took cash loans, unless they were required to buy bullocks or spend money on social ceremonies. The rate of interest charged for paddy loans varied between 25 and 50 per cent.

(IV) The middlemen and mill-owners purchased paddy from farias and commission agents, and also direct from the cultivators. Aratdar commission was 6 pies per maund. The middlemen do not get more than anna $\frac{1}{2}$ or anna 1 per maund.

Prices rise by not more than annas 4 from harvest time to summer. It is only the stockists, who get the benefit of this rise in price. Only 10 per cent. of the population can stock paddy for a rise in its price. Sixty per cent. of the people cannot carry on for more than six months. They have to live on paddy loans.

There were 30 mills in the district. Rice was exported to United Provinces, Bihar, East Bengal, Jalpaiguri and Narayanganj. The freights on the Bengal-Nagpur Railway were very high. No concession rates for the transport of paddy were allowed. Another reason for the plight of the milling industry was the import of Burmese rice. The markets for Bankura rice were rapidly being affected by these imports.

Précis of evidence recorded at Midnapore on 5th February 1939.

The Sub-Committee examined (I) three officials, including the District Magistrate, (II) two leaders of local opinion, (III) four representatives of growers, and (IV) four representatives of millowners and merchants.

(I) The District Magistrate agreed that the present method of collecting statistics was unsatisfactory. No care was bestowed on the election of plots for crop-cutting experiments and consequently the results were unreliable. He suggested that one Agricultural Demonstrator should be appointed in each thana, and it should be one of his duties to prepare the statistics and also to carry out crop-cutting experiments. If more accurate results were sought, a separate staff would have to be appointed.

There were two well-marked geological divisions in this district—(1) laterite and (2) alluvial. The average holding of a cultivator in the former area was 8-10 bighas, and that in the latter area was 5-6 bighas. The yield varied from 5 to 10 maunds per bigha. The average cost of cultivation was Rs. 8 per bigha.

About 30 per cent. of the population were landless, about 50 per cent. actual growers (including *bhag-chasis*), and 20 per cent. middle-class, artisans, etc.

Rise in the price might adversely affect about half the population. The prevailing price of rice was not remunerative; it should rise by about 40 per cent.

He suggested the following measures:—

- (i) irrigation facilities;
- (ii) better seeds; and
- (iii) better substitute crops.

He was not very much in favour of co-operative societies or regulated markets.

The District Agricultural Officer suggested that sugarcane and long-staple cotton might be successfully grown in this district, if the cultivators could take kindly to them.

(II) The witnesses of this group were of opinion that the best way to improve the economic position of the cultivators were the provision of:—(i) better manure, (ii) better seeds and (iii) better irrigation facilities—particularly in the laterite portion of the district, viz., Sadar and Jhargram subdivisions.

Both of them were sceptical of the success of co-operative societies, and the Secretary of the local Co-operative Central Bank stated that if paddy could be successfully marketed through co-operative societies, cultivators would only get annas 2 or annas 3 per maund more than what they got at present.

(III) The witnesses of this group gave some interesting estimates of cost and yield.

	Cost of cultivation.	Yield.
Laterite area ..	Rs. 7 per bigha (transplanted Aman).	6—7 maunds per bigha.
Alluvial area ..	Rs. 9-8 (broadcast paddy) .. Rs. 7-8 (transplanted paddy)	4½—5 maunds per bigha. 5—5½ maunds per bigha.

The price usually went up by annas 4 a maund in summer. Cultivators did not purchase paddy, but took paddy loans at 25-50 per cent. interest.

(IV) The witnesses of this group stated that paddy was mostly exported from Contai, which was a surplus subdivision. Rice was exported from the other subdivisions. Contai paddy was mostly transported by boats, whereas rice from the other subdivisions as well as a small quantity from Contai was sent by railways to Calcutta and other markets. The railway freight from Manikpara (Jhargram) to Calcutta is about annas 5 or annas 6 per maund.

Précis of evidence recorded at Burdwan on 9th February 1939.

The Sub-Committee examined (I) the District Magistrate, (II) three representatives of local opinion, (III) six representatives of growers and (IV) four representatives of local merchants and middlemen.

(I) The District Magistrate admitted that the present statistics relating to paddy and rice were unsatisfactory, but saw no use in having accurate statistics. He thought they might be useful only in times of famine and distress. According to him, Burdwan was about self-supporting in its requirements of paddy and rice.

Aman, the chief crop in the district, was transplanted and very little rabi crop was grown. Cost of production was Rs. 11 per bigha; and average yield was 6 maunds per bigha.

During the last three years, the price of paddy varied from Rs. 1-8 to Rs. 1-12. The present price was Rs. 1-12 to Rs. 2. Prices appeared to be gradually rising.

Among the improvements he suggested were—

- (i) standardisation of weights and measures;
- (ii) use of better seeds and manures;
- (iii) improved irrigation facilities; and
- (iv) standardisation of land measures (size of the bigha).

He was not in favour of artificial fixation of price. The cost of enforcing it will be heavy.

About 33 per cent. of the population were landless labourers, and a large foreign population was employed in the mines and factories at and about Asansol. They were likely to be hit by the rise in prices. Wages were not likely to go up proportionately.

Co-operative marketing might be tried. The fluctuation in the price in course of the season was annas 4 to annas 8 per maund.

(II) Of the three witnesses in this group, the Secretary of the local Central Co-operative Bank was examined mainly with regard to the working of the co-operative movement in the district. According to him, the present position was extremely unsatisfactory. He was sceptical of the success of co-operative irrigation societies. The members were not willing to repay their dues. Unless certificate powers were given, co-operative societies of any kind could not function.

The Secretary of the Union Board Association gave the cost of production as Rs. 10 per bigha exclusive of rent, which was about Rs. 2 per bigha. The average yield was 6 maunds per bigha. The present price was Rs. 1-13 per maund. He thought the price could be raised by an import duty on Burmese rice. At present it was the Burmese imports which kept the price low.

He thought Burdwan was not a self-supporting district, although it exported at the time of harvest. Imports appeared to exceed exports over the year.

The Chairman, District Board, however, thought that Burdwan was a surplus district. He did not think the people of Burdwan were ill-fed. The present price of paddy was Re. 1-12 or Re. 1-3 per maund. This was not a fair price. If the price could be raised to Rs. 2-8 or Rs. 3 most of their present day ills would disappear. But he himself did not know how the price could be raised to this figure. Co-operative societies might help, but the people were not trained in co-operative efforts.

(III) The growers' representatives gave different estimates of costs of production for the different parts of the district.

		Kalna.		Galsi.
(i) Cost of production	..	Rs. 8 per bigha	..	Rs. 10 per bigha.
		Rs. 12 per bigha	..	Rs. 11 per bigha.
(ii) Yield	..	8 to 9 maunds	..	8 maunds.
		6 to 7 maunds.		

The witnesses admitted the necessity for irrigation facilities, but were unwilling to pay any tax on this account. The yield could be increased by 1 or $1\frac{1}{2}$ maunds per bigha.

Last year, the price was Re. 1-8 to Re. 1-9 at Katwa and Galsi, and Re. 1-8 to Re. 1-12 at Kalna. The price had gone up this year. The average of the last four years was Re. 1-8 per maund.

According to the witnesses, the minimum price should be at least Rs. 2-12 per maund. Paddy cultivation was a losing concern. Some witnesses, however, thought that a profit of 30 per cent. on the cost of cultivation would be a fair price.

(IV) These witnesses emphasised the point that trade in paddy and rice had ceased to be a profitable proposition. The beparis made a profit of 2 pice per maund. The margin, however, varied in different parts of the district.

The witnesses suggested a duty on Burmese imports. Wage-rates would go up with the rise in price of paddy, and so wage-earners would not be materially affected. During the last forty years, there was scarcity in Burdwan only in 1342 B.S. Hence the necessities of any abnormal year need not influence normal policy.

Précis of evidence recorded at Suri on the 11th February 1939.

The Sub-Committee examined (I) the District Magistrate, (II) four representatives of local opinion, (III) four representatives of growers, and (IV) four representatives of middlemen and merchants.

(I) The District Magistrate stated that the most important problem of the district was that of irrigation. There was scarcity almost once in every two years. This was due to the failure of the October rain. Tank irrigation was the best of irrigation in this district—tube-wells were expensive, and would not be successful in most places.

Crop statistics were extremely unsatisfactory. He did not however see the necessity of absolute accuracy in these figures except in years of scarcity of distress.

				Rs.	a.
Cost of cultivation	...	...	...	5	4
Rent	...	...	...	2	0
				<hr/>	<hr/>
				7	4
Yield—8 maunds per bigha.					
Price—					
1934	...	...	...	3	4
1935	...	...	...	3	2
1936	...	...	...	3	12
1937	...	...	...	3	2

The present price of rice was Rs. 3 per maund. The price of paddy at Bolpur (a centre of milling industry) was higher (Rs. 2 per maund) than in other areas (about Rs. 1-12). The quality of paddy at Bolpur was higher.

It was doubtful if price could be directly controlled; the success of co-operative marketing could not be assured. According to him, the condition of the cultivator could be improved by—

- (a) use of improved seeds, and
- (b) irrigation facilities.

Normally, Burma rice was not imported into Calcutta. Percentage of landless labourers in the district was about 40.

(II) The representatives of local opinion included President of the local Bar Association, and the Secretary of the Central Co-operative Bank, Suri.

The President of the Bar Association alone advocated fixation of minimum price. He thought it was possible to enforce it by legislation, and not much staff would be required. According to him, the price depended entirely on aratdars and mill-owners. If, however, these people refused to buy at the minimum price, he did not know what to do.

The other witnesses did not advocate minimum price, but agreed that increase in price was desirable. Amidst the methods suggested for this were—

- (1) improved seeds;
- (2) improved irrigation facilities;
- (3) co-operative irrigation societies—if they were run by competent officers; and
- (4) standardization of weights.

One of these witnesses got as much as 13/14 maunds of paddy per bigha by the use of improved seeds and with tank irrigation.

The Secretary of the Suri Central Bank pointed out that one of the difficulties in the way of successful working of the co-operative irrigation societies was that it was not easy to recover the one instalment of cost from the members.

(III) The witnesses belonging to this group gave varying estimates of cost and yield.

The cost of production was about Rs. 7 per bigha (including rent of Rs. 2), except in Rampurhat where it was higher. The average yield was 5 maunds at Nannoor, and 6 maunds at Rampurhat. Prices were as follows:—

					Rs. a.
1340	...	...	...	...	1 8
1341	...	...	...	...	1 8
1342	...	...	...	...	1 8
1343	...	...	...	...	1 12
1344	...	...	...	...	1 12
1345	...	...	...	...	2 0

The price was usually low from Agrahayan to Chaitra, and rose between Ashar and Aswin. The difference was small—not exceeding annas 4 a maund. Ordinarily, cultivators usually sold their paddy by the end of Chaitra. For the rest of the year they had to live on paddy loans, which had to be repaid in Magh. The rate of interest was 12 seers per maund whatever might be the period for which the loan had been taken.

(IV) The representatives of this group argued that it was a loss to sell price at about Rs. 2-13 per maund as they had been doing for the last 6 or 7 years. The fall in price was due to the importation of Burmese rice, which was competing with Bengal rice not only in Calcutta and its neighbourhood, but also up-country. Such competition was facilitated by the freight policy of the Railways. The freight charges for paddy from Howrah to Chapra and Bolpur to Chapra were the same 7/8 annas per maund. Further there was the dearth of wagons, with the result that bookings were often unnecessarily held up, with consequent losses to dealers.

The buyers charged a *dhalta* of 1 seer at Rampurhat and 2 seers per maund at Sainthia. No other brittis were charged.

According to them, Birbhum was a surplus district.

Précis of evidence recorded at Malda on 1st March 1939.

The Sub-Committee examined (I) three officers, including the District Magistrate, (II) one representative of local opinion, (III) seven representatives of growers, and (IV) six representatives of middlemen and merchants.

(I) The District Magistrate stated that Malda was a surplus district. Approximately 3 lakhs of maunds were exported annually, of which 50,000 maunds came from Dinajpur. About 70 or 80 thousand maunds of milled rice were exported. The principal district to which

paddy and rice were exported were Nadia, Pabna, Mymensingh, Dacca and Rajshahi.

About 15/20 per cent. of the people were landless. The witness did not favour fixation of minimum price. The other official witnesses also agreed.

The following improvements were suggested:—

- (i) distribution of improved seeds;
- (ii) standardization of weights;
- (iii) improvement of communications;
- (iv) establishment of demonstration farms in every union;
- (v) improved irrigation facilities—it was stated that there were a large number of silted-up tanks scattered all over the district. If these could be re-excavated, irrigation facilities would greatly improve.

(II) The witness stated that the lands of most of the big jotdars were cultivated in *bhag*. The bargadars got half the produce plus 6 seers per maund as "*Jin*" (i.e., cost of harvesting by hired labour). If the cultivator supplied seeds, he got the straw.

Chapai-Nawabganj was the largest export centre. About 2 maunds of paddy were exported from there every year. There was a Co-operative Paddy Purchase and Sale Society there. It was financed by the Central Co-operative Paddy Sale Society at Uladanga. Price ruled as follows in different years:—

1341 and 1342 B. S.	...	Re. 1-2 to Re. 1-4.
1343	...	Re. 1-4 to Re. 1-6.
1344	...	Re. 1-6 to Re. 1-9.
1345	...	Re. 1-6 to Re. 1-9.

(1 seer = 60 tolas.)

He favours fixation of minimum price at Rs. 2 (1 seer = 60 tolas). Suggests the same improvements as the witness in group I.

Cost of production	..	..	Re. 7-8 per bigha.
Yield	..	..	6 maunds per bigha.

(III) The witness of this group gave varying estimates of costs of production and yield. The cost was said to vary from Rs. 5 to Rs. 8 per bigha, and the yield from 3 maunds to 6 maunds per bigha.

They suggested the same improvements as the witnesses in group I.

(IV) These witnesses stated that the price of paddy appeared to be very slowly rising in course of the last few years. The present price was Rs. 1-12 per maund which was an improvement on last year's prices. The price was low immediately after harvest, but gradually rose up to its maximum in Aswin and Kartick. The difference varied between annas 4 and annas 8.

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